JVC

SERVICE MANUAL

VIDEO CASSETTE RECORDER

HR-D990EG

premiere

Hi-Fi

VHS
PAL

SPECIFICATIONS

GENERAL

Power requirement	AC 220 – 240 V∼, 50/60 Hz
Power consumption	34 W
Temperature	5°C to 40°C (Operating) –20°C to 60°C (Storage)
Operating position	Horizontal only
Dimensions (WxHxD)	435 x 108 x 354 mm
Weight	6.0 kg
Format	VHS PAL standard
Tape width	12.65 mm
Tape speed (SP)	23.39 mm/sec
Tape speed (LP)	11.70 mm/sec
Maximum recording time (SP)	240 min. with E-240 video cassette
(LP)	480 min. with E-240 video cassette

VIDEO

Signal system	PAL colour and CCIR monochrome signals, 625 lines/50 fields
Recording system	Rotary two-head helical scan system with slant double-azimuth combination video heads
Input	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output	1.0 Vp-p, 75 ohms, unbalanced
Signal-to-noise ratio	43 dB (Rohde & Schwarz noise meter)
Horizontal resolution	250 lines

AUDIO

Input	Mic:–67 dBs, high impedance, unbalanced AUDIO IN connector (RCA x 2): –8 dBs, 50 k-ohms, unbalanced AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), 10 k-ohms, unbalanced
Output	AUDIO OUT connector (RCA x 2): –6 dBs, high-impedance load less than 1 k-ohm, unbalanced (100 k-ohms, load) AUDIO/VIDEO socket (21-pin Peri connector):–3.8 dBs, (CENELEC standard), high-impedance load less than 1 k-ohm, unbalanced

NORMAL AUDIO

Recording system	Longitudinal track
No. of audio channels	1 (monaural)
Frequency range	70 Hz to 10,000 Hz

Hi-Fi AUDIO

Recording system	Deep-layer recording system conforming to stereo Hi-Fi VHS standard
No. of audio channels	2 Hi-Fi audio channels
Frequency response	20 Hz to 20,000 Hz
Dynamic range	More than 90 dB
Wow and flutter	Less than 0.005% WRMS

TUNER

Tuning system	Frequency synthesized tuner
TV channel storage capacity	48 positions (+ AUX position "AU")
Channel coverage	VHF 47 – 111 MHz 111 – 300 MHz 302 – 470 MHz (Hyper band for PAL) UHF 470 – 862 MHz
Aerial output	UHF channel 36 (adjustable 32 – 40)

TIMER

Clock reference	Quartz-crystal
Programme capacity	1-year/8-programme timer
Memory backup time	60 min.

ACCESSORIES

Provided accessories	Aerial cable Infrared remote control unit "R6" battery x 2 Audio cable
Optional accessories	VPV adapter VU-V120E VPT adapter VU-V140E

Specifications shown are for SP mode unless otherwise specified.
Design and specifications subject to change without notice.

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No. 82329
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NOTE: For a technical description, please refer to Technical Guide VTG82063 General.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▨) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

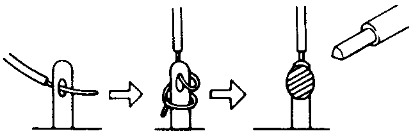


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10–15 kg of force in any direction will not loosen it.

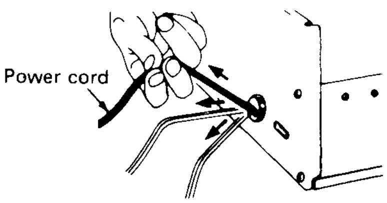


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number** : E03830-001
    2) **Required tool** : Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

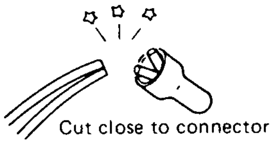


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

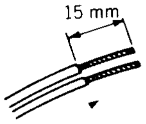


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

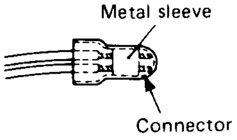


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

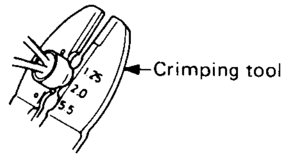


Fig. 6

(5) Check the four points noted in Fig. 7.

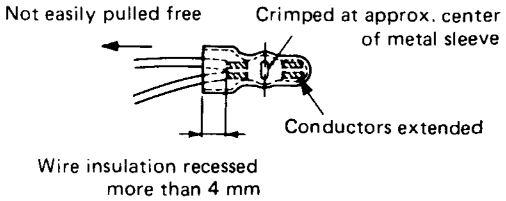

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

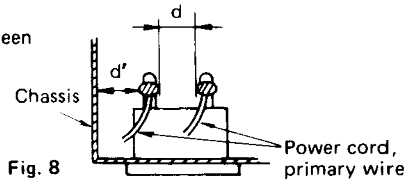


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

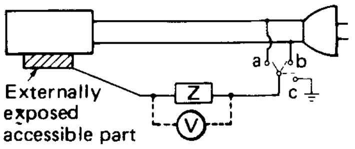


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

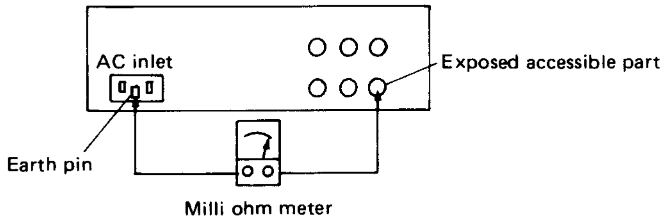


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

Safety Precautions

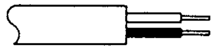
The rating plate and the safety caution are on the rear of the unit.

WARNING — DANGEROUS VOLTAGE INSIDE
WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

IMPORTANT

Connection to the mains supply plug in the United Kingdom.

Do not make any connection to the Larger Terminal coded E or Green. The wires in the mains lead are coloured in accordance with the following code:



If these colours do not correspond with the terminal identifications of your plug, connect as follows:
Blue wire to terminal coded N (Neutral) or coloured Black.
Brown wire to terminal coded L (Live) or coloured Red.
If in doubt — consult a competent electrician.

CAUTION

- When you are not using the recorder for a long period of time, it is recommended that you disconnect the power cord from the AC outlet.
- Dangerous voltage inside. Refer internal servicing to qualified service personnel. To prevent electric shock or fire hazard, remove the power cord from the AC outlet prior to connecting or disconnecting any signal lead or aerial.

Omkopplaren OPERATE på denna apparat är sekundärt kopplad och skiljer inte apparaten från nätet i läge OPERATE OFF.

The OPERATE button does not completely shut off mains power from the unit, but switches operating current on and off.

BEMAERK: I stilling OFF er apparatet stadig forbundet med lysnettet Hvis det ønskes fuldstændig afbrudt skai netledningen trækkes ud.

This unit is produced to comply with Directives 76/889/EEC, 82/499/EEC, 87/308/EEC and Standard IEC Publ. 65.

IMPORTANT:
Please read the "Precautions" section of this instruction manual before installing or operating the recorder.

WARNING

There are two different types of SECAM colour systems: SECAM-L, used in FRANCE (also called SECAM-West), and SECAM-B, used in Eastern European countries (also called SECAM-East).

1. This recorder can also receive SECAM-B colour television signals for recording and playback.
2. Recordings made of SECAM-B television signals produce monochrome pictures if played back on a video recorder of SECAM-L standard, or do not produce normal colour pictures if played back on a PAL video recorder with SECAM-B system incorporated (even if the TV set is SECAM-compatible).
3. SECAM-L prerecorded cassettes or recordings made with a SECAM-L video recorder produce monochrome pictures when played back with this recorder.
4. This recorder cannot be used for the SECAM-L standard. Use a SECAM-L recorder to record SECAM-L signals.

IMPORTANT: It may be unlawful to record or play back copyrighted material without the consent of the copyright owner.

- Only cassettes marked "VHS" can be used with this video recorder.
- HQ VHS is compatible with existing VHS equipment.

Video tapes recorded with this video recorder in the LP (Long Play) mode cannot be played back on a single-speed video recorder.

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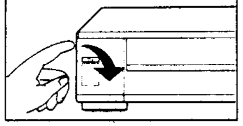
How To Use This Instruction Manual

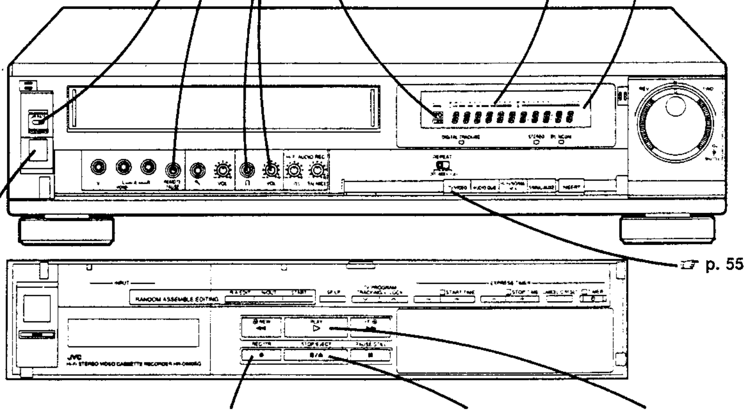
This instruction manual has been designed with both new and experienced users in mind. The first half offers detailed, step-by-step instructions for setting up your video recorder, and on using its basic functions. The second half provides instructions on the many other functions available on your video recorder. So just by following the instructions on the "Getting Started" and "Basic Operation" sections of this manual, you can master all of your recorder's basic functions, including timer-recording. Once you're sufficiently familiar with basic operation, or if you're already an experienced video user, you can move on to the more advanced functions introduced on the following pages. Related features have all been clustered together for easy reference, and their categories (playback, recording, timer, etc.) are easily recognisable by the symbol appearing in the page header.
If you ever need to refer to another page for instructions or information, you will be told so by a ☞ mark pointing to the page number.
Remember, you must use your video recorder correctly to fully enjoy it. Please use this manual effectively. It's the surest and quickest way to unlock the full potential of your new JVC video recorder.

Controls, Indicators, And Connectors

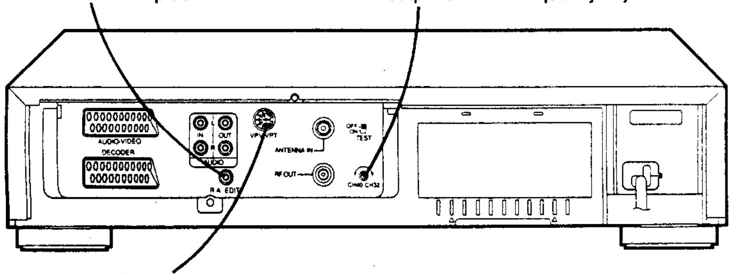
Front Panel

To open the front panel cover, pull forward with finger.



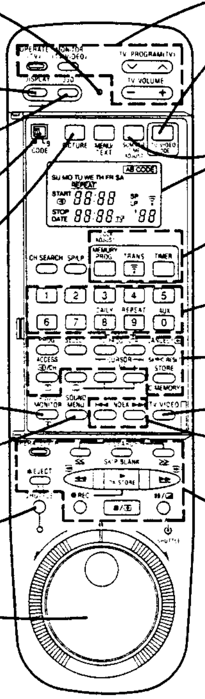

OPERATE button with LED indicator
Audio level meter
REMOTE PAUSE terminal ☞p.85
Message display panel ☞p.60, 89
Headphone jack and Volume control
"Cassette loaded" indicator
☞ p. 55
Infrared beam sensor window
■ Point the remote control at this.
REC/ITR button ☞p.70
STOP/EJECT button
PLAY button

Back Panel


R.A. EDIT terminal ☞ p.82
RF output channel frequency adjustment screw
VPV/VPT connector ☞ p.88

Wireless Remote Control

Open the remote's cover to access the buttons under the cover.


Initialises the LCD memory:
Insert a pointed object into this hole and push the switch located inside. Normally, there is no need to touch this switch.
☞p.70
OSD (On-Screen Display) ☞p.60, 70, 80
A/B Code Changing ☞p.80
PICTURE Control ☞p.68
AUDIO MONITOR ☞p.67
☞p.68
JOG/SHUTTLE controls ☞ p.67
TV Operation ☞p.87
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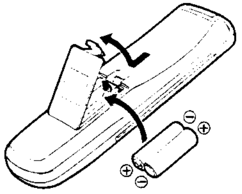
LCD (Liquid Crystal Display)
LCD Timer, Clock Adjust
Multi-Purpose Numeric Keys
Timer, Tuner and Counter
☞p.55
☞p.69
Basic Functions

Installing Batteries

1. Open the battery compartment cover.
2. Insert 2 "R6"-size batteries (provided) in the correct directions.
3. Replace the cover.



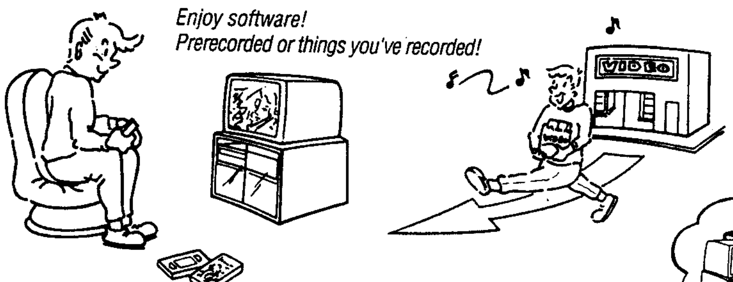
NOTE:
Some buttons have additional labels (mostly pictograms) for teletext operations. You will find instructions for these in the Instruction Manual of the teletext adapter.

How To Use

The remote control can operate most of your video recorder's functions, as well as basic functions of TV sets of JVC and other brands. ☞p.87
- Point the remote control toward the sensor window.
- The maximum operating distance of the remote control is about 8 m.

Getting To Know Your Video Recorder

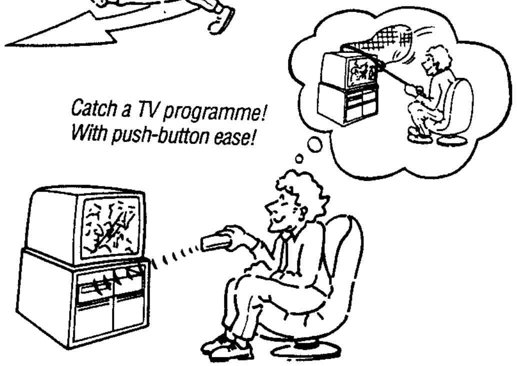
The 3 Basic Ways Of Using Your Video Recorder



Enjoy software!
Prerecorded or things you've recorded!

Playback

With the video recorder properly hooked-up to your TV set, viewing videos is as easy as pushing the Play button. Prerecorded VHS software is available just about anywhere, and your video recorder will let you enjoy it all. And, of course, you can enjoy those programmes you've recorded yourself too.



Catch a TV programme!
With push-button ease!

Recording

Just press the Record and Play buttons together on your remote control. The recorder will record whatever it is that you're watching. In other words, you can instantly "catch" a TV programme in progress to see it again later, show it to someone else, or keep it as part of your video library. Recording is possible for 4 hours in the SP (Standard Play) mode, and for 8 hours in the LP (Long Play) mode, on a single E-240 cassette.

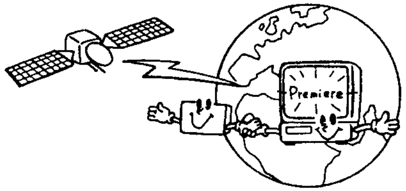
Record TV programmes while you're away.
Watch TV programmes when you want.

THE LATE SHOW

Timer-Recording

By using the built-in timer, you can set your video recorder to record TV programmes for you while you're asleep, while you're away, or while you're doing something else. Then you can watch those programmes later, whenever it's convenient, whenever you want. This is what's called "timeshifting", and now you can do it the JVC way.

Some Other Functions On Your Video Recorder



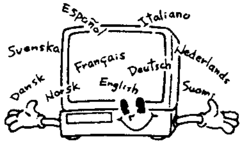
Premiere Decoder Compatible

Can subscribe to Premiere and receive satellite broadcasts via a connected Premiere decoder.

GOOD MORNING
GOOD MORNING

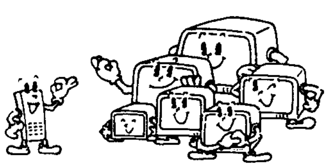
"Message" Display Panel

The video recorder "talks" to you from its message display panel. It's easy to understand what the recorder is doing at any time — a friendlier way to interact with your video deck.



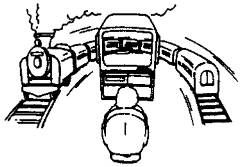
Multi-Language On-Screen Display

Ten languages to choose from. So you can check the engaged mode, program the timer, and more, while watching on-screen messages in your own language.



Multi-Brand-TV-Compatible Remote Control

Compatible with most major brands of televisions for basic control functions. Put an end to two-handed remote control.

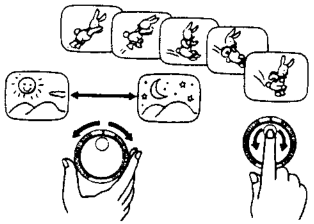


Hi-Fi Stereo Sound

Enjoy films with Hi-Fi stereo soundtracks just as you would in theatres. Use the built-in Sound-Multiplex decoder to record stereo or bilingual programmes.

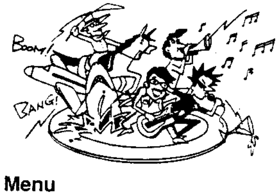
Express Timer

Makes timer programming as easy as pressing three buttons on the recorder. Start time, stop time, engage — that's all!



Jog/Shuttle Controls

Fast, accurate visual search from slow motion to fast motion, or frame-by-frame search, in either direction. Useful in editing or playback.



Sound Menu

Brings out the best in video sound with the most effective acoustic compensation for every type of software — whether it's stereo or mono, film or music.

Making The Right Connections

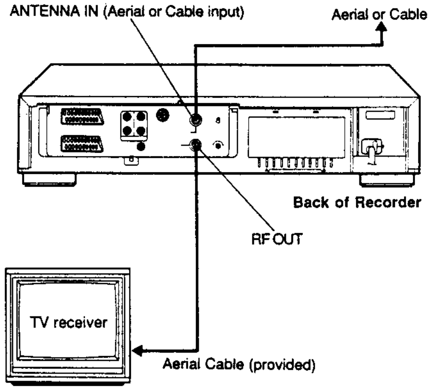
It's essential that your video recorder be properly connected. Follow these steps carefully. THESE STEPS MUST BE COMPLETED BEFORE ANY VIDEO OPERATION CAN BE PERFORMED.

A RECORDER-TO-TV CONNECTION

RF CONNECTION

For TV sets without AV input terminals:

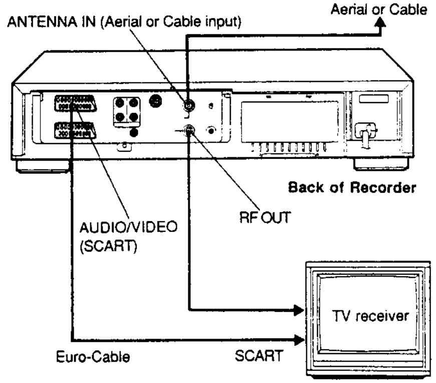
1. Connect the TV aerial cable to the recorder.
2. Connect the recorder to the TV's aerial terminal.


ANTENNA IN (Aerial or Cable input)
Aerial or Cable
Back of Recorder
RF OUT
TV receiver
Aerial Cable (provided)

AV CONNECTION

For TV sets with AV input terminals:

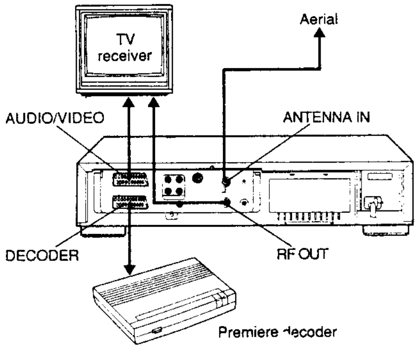
1. Connect the aerial, recorder and TV as per "RF CONNECTION".
2. Connect the recorder to the TV's 21-pin SCART connector.


ANTENNA IN (Aerial or Cable input)
Aerial or Cable
Back of Recorder
AUDIO/VIDEO (SCART)
RF OUT
TV receiver
Euro-Cable
SCART

NOTE:

If your television is not stereo-capable, use the recorder's AUDIO OUT connectors to connect to an audio amplifier for Hi-Fi stereo sound reproduction.

B RECORDER-TO-DECODER CONNECTION


TV receiver
Aerial
AUDIO/VIDEO
ANTENNA IN
DECODER
RF OUT
Premiere decoder

If you are subscribed to Premiere, simply connect the decoder (provided by Premiere) to the DECODER connector of your recorder. Then you can record or timer-record Premiere programmes as well.

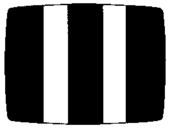
CONNECTION

1. Connect the recorder and TV as per "RECORDER-TO-TV CONNECTION".
2. Connect the decoder to the DECODER connector of the recorder.

C ADJUST VIDEO CHANNEL (UHF 36)

With an RF connection, the video recorder sends picture and sound signals through the connecting cable to your TV on UHF channel 36.

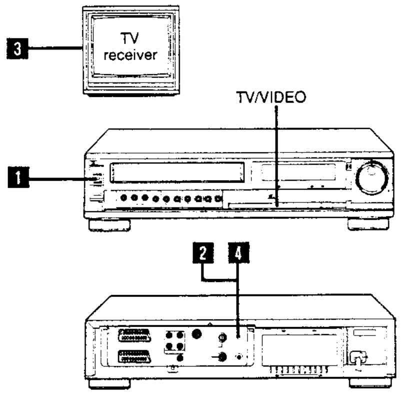
TEST SIGNAL



1. Turn on the recorder.
2. Set the TEST switch to ON.
3. Set your TV to UHF channel 36 and fine-adjust it until you bring in the two vertical white bars on the screen most clearly.
   - Your TV should be set to the channel designated for use with a video recorder or to a spare channel if there is not a specified channel.
4. Reset the TEST switch to OFF.

NOTE:

If some interference noise is seen on the screen because of broadcasts on neighbouring channels, it is necessary to shift the video channel from UHF channel 36. This is possible for UHF channels 32 through 40. Consult your JVC dealer for making this adjustment.


3
TV receiver
TV/VIDEO
1
2
4

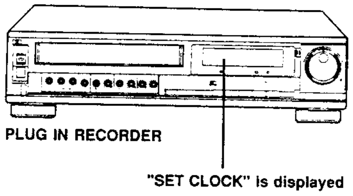
IMPORTANT:

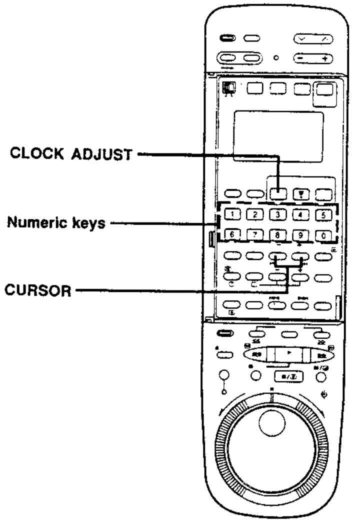
To operate the recorder with your TV using an RF connection, it is always necessary to set your TV's channel to VIDEO CHANNEL. With an AV connection, set the TV to the VIDEO (or AV) mode.

- The TV/VIDEO button switches the recorder's mode between TV and VIDEO. When the power is turned on, the recorder's TV mode is selected. To use the recorder's function, select the VIDEO mode.
- When the TV/VIDEO button is used to change the recorder's mode to VIDEO, the connected TV's mode also switches to VIDEO automatically.

Setting The Clock

Since your video recorder bases all of its timer recording start and stop "decisions" on the time kept by its built-in clock, accurate setting of this clock is crucial for proper timer-recording results. Follow these instructions to set the remote control's LCD clock and transfer its contents to the recorder's clock.

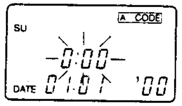

PLUG IN RECORDER
"SET CLOCK" is displayed


CLOCK ADJUST
Numeric keys
CURSOR

A LOAD BATTERIES (☞p.51)

1 Check the LCD.

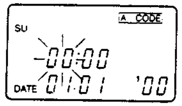
- The time display section (0:00) will be blinking.


SU
A CODE
-0:00-
DATE 01·01 '00

B START CLOCK SETTING

2 Press CLOCK ADJUST.

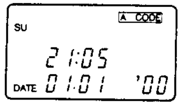
- Blinking digits will prompt you to items that can be set.


SU
A CODE
-00:00
DATE 01·01 '00

C INPUT THE TIME

3 Press the appropriate numeric keys.

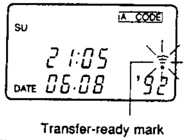
- Example: For 21:05, press 2 1 0 5. Always enter "0" before single-digit entries.


SU
A CODE
21:05
DATE 01·01 '00

D INPUT THE DAY/MONTH/YEAR

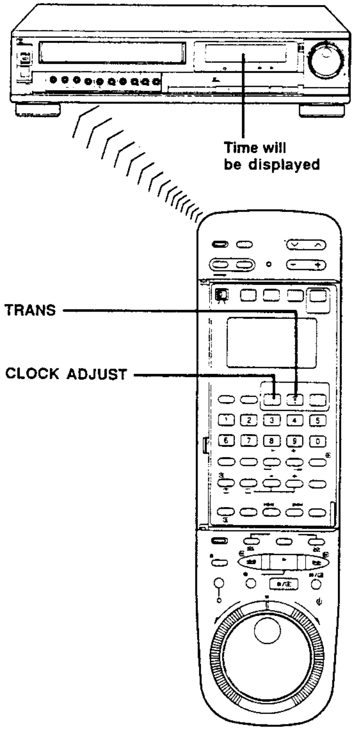
4 Press the appropriate numeric keys.

- Example: For 6th August, 1992, press 0 6 0 8 9 2. Always enter "0" before single-digit entries.
- After setting the year, the transfer-ready mark will appear and blink.


SU
A CODE
21:05
DATE 06·08 '92
Transfer-ready mark

TO MAKE CORRECTIONS

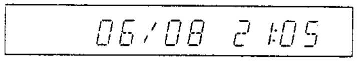
Press either CURSOR button so that the item you want to change blinks. Re-input that item. Continue to step E.


Time will be displayed
TRANS
CLOCK ADJUST

E TRANSFER AND START THE CLOCK

5 Press TRANS.

- The day of the week will automatically appear.
- The remote control's clock will start. At the same time, the set data will be transferred to the recorder.



AFTER A POWER OUTAGE

· Since your video recorder has a 60-minute backup memory, it will not be affected by short power outages. If mains power is unavailable for over one hour, however, the recorder's display will revert to "SET CLOCK". In such a case, simply transfer the remote control's time to the recorder.

1 Press CLOCK ADJUST twice.
2 Press TRANS.

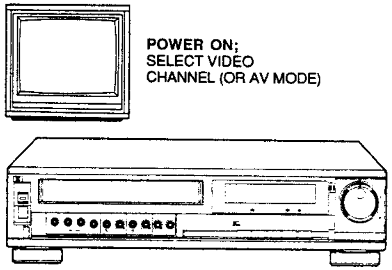
For quick "summer time" (Daylight Saving Time) adjustment, ☞p.80.

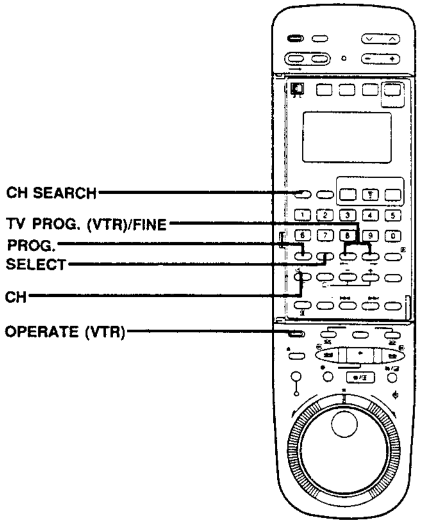
NOTES:

- If the day and month data is invalid (such as 31st April), the month digits are cleared automatically and the day digits will blink. Input again.
- If the year digits are automatically cleared in step D, it is possible that you have input 29th February for a non-leap year. Input again.
- When the batteries are exhausted, the time display will change to "0:00" and start blinking. Replace all the batteries and set the clock again.

Setting The Tuner

The procedure introduced here lets you assign receivable channels in your area to channel positions on your video recorder's tuner. Once stored, these can be accessed with the TV PROG. (VTR) ∨/∧ buttons. During channel scanning, empty tuner channel positions will be skipped so you won't have to go through any "blank" channels to get to the one you want.





A ENGAGE THE CHANNEL SET MODE

1 Press OPERATE (VTR).

PR 1

2 Press CH.

B SEARCH FOR RECEIVABLE CHANNELS

3 Press CH SEARCH.
- Automatic scanning will start at the lowest channel number, and stop when a broadcast is detected.

REAL Ch:26

⬇

SKIPPED

- Regular channels (Ch) are scanned first, then cable channels (CC).

C FINE-TUNE THE CHANNEL

- Check the picture on the TV screen, and fine-tune it if necessary. When the picture is clear, proceed to Step D.

4 Press SELECT.

5 Press FINE (+ or –) so that the "–" sign appears at the centre.

FINE - Ch:26

6 Press SELECT.

D SELECT A TUNER POSITION

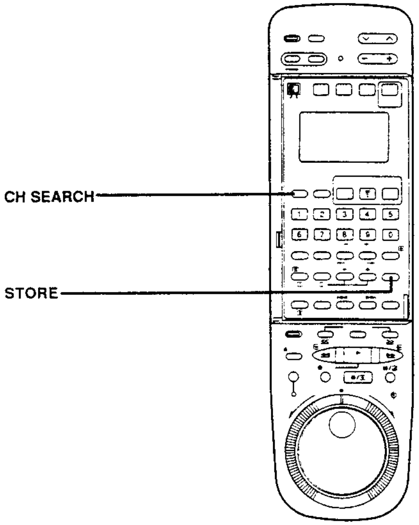
7 Press TV PROG. (VTR) to select the tuner channel position where you wish to store that broadcast.

SKIPPED

FOR CODED-TV CHANNELS (Ex:Premiere)

- If a scrambled picture appears on the screen, press PROG. The picture will be clear if the decoder is connected to the recorder and the power is on.

DECODE ON



E STORE THE CHANNEL

8 Press STORE.

STORED 1

⬇

REAL Ch26

- This message indicates that UHF channel 26 has been stored into the tuner's channel position 1.
- When a coded-TV channel has been stored, the display panel shows:

STORED d 1

F CONTINUE

9 Repeat steps B through E for other receivable channels.

TO CHANGE PRESET CHANNELS

- If you have already preset some channels, do not use the automatic Channel Search function to change or add channels. ☞ p.86.

ATTENTION

The "real channel" numbers displayed on the recorder may not correspond to channel designations in your area.

ITALY

Display	Ch	13	14	15	16	17	18	19	20	11	12
Corresponding channel		A	B	C	D	E	F	G	H	H1	H2

BELGIUM

Display	CC	01	02......10	11......20
Corresponding channels		80(M1)	81(M2)...89(M10)	90(U1)...99(U10)

SWITZERLAND

Display	CC	75	76	77
Corresponding channel		X	Y	Z

NOTES:

- If you don't want to store the broadcast detected in Step B, simply press CH SEARCH to continue automatic scanning. Search will stop as soon as another broadcast is detected.
- Be sure to proceed to the next step within 60 seconds, otherwise Channel Search will be cancelled automatically. If this happens and you wish to continue channel setting, press CH SEARCH again. Channel scanning will resume, beginning with the next receivable channel.
- To cancel "decoding" of the received channel in "FOR CODED-TV CHANNELS", press PROG. again.

Mode Displays — What They Mean

Message Display Panel

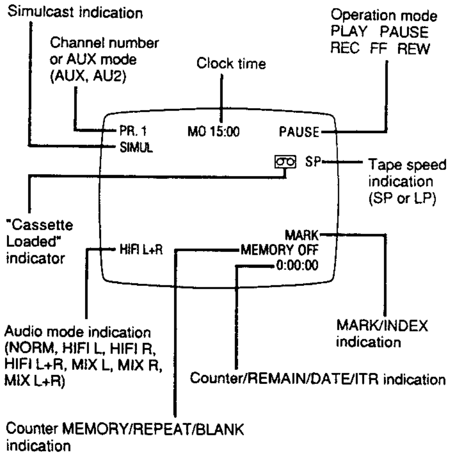
The operation mode is displayed on the recorder's display panel automatically. Displayed messages are designed to be self-explanatory. Here are some of the more common displays:

DISPLAY	MODE	DISPLAY	MODE
PLAY	Play	PAUSE (with channel number)	Record-Pause
STILL	Still	FWD SEARCH	Forward Search
FF	Fast-Forward	REV SEARCH	Reverse Search
REW	Rewind	FWD SLOW	Forward Slow
REC SP (with channel number)	Record	REV SLOW	Reverse Slow
TIMER REC	Timer-Recording	EJECT	Eject

For a more comprehensive list, ☞ p.89.

On-Screen Display

Operation modes (except PAUSE) are displayed on the TV screen only when the On-Screen Display function is set to ON. ☞p.80.


Simulcast indication
Channel number or AUX mode (AUX, AU2)
Clock time
Operation mode PLAY PAUSE REC FF REW
PR. 1
SIMUL
MO 15:00
PAUSE
SP
Tape speed indication (SP or LP)
"Cassette Loaded" indicator
HIFI L+R
MARK
MEMORY OFF
0:00:00
Audio mode indication (NORM, HIFI L, HIFI R, HIFI L+R, MIX L, MIX R, MIX L+R)
MARK/INDEX indication
Counter/REMAIN/DATE/ITR indication
Counter MEMORY/REPEAT/BLANK indication

AUTOMATIC INDICATION

- **Channel, operation mode, audio mode, simulcast indication and "Cassette Loaded" mark**
  When the status is changed, the corresponding indication is displayed on the screen for 5 seconds. The PAUSE mode indication, however, is displayed for as long as the Pause mode is engaged.
- **Time and date**
  When time setting is completed, time and date are displayed for 5 seconds.

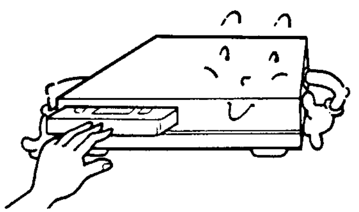
MANUAL RECALL

1. Press OSD (On-Screen Display).
   - All indications corresponding to the current status is displayed for 5 seconds, leaving the counter information (counter, REMAIN or DATE) on the screen.
   - To check only the counter information, press DISPLAY.
2. Press OSD to clear the counter display.

Handling Video Cassettes

A LOADING A CASSETTE

1. Pull the front panel cover open.
2. Insert a cassette with its label side facing you.
   - If the cassette is not loaded firmly it will be ejected.



B UNLOADING A CASSETTE

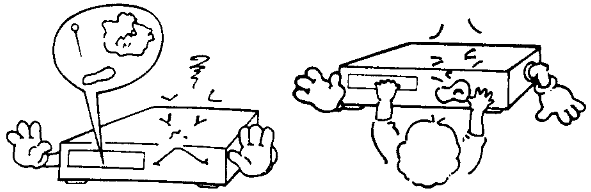
1. Press EJECT.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the message display panel. If it is, press the TIMER button to turn it off.

NOTES:

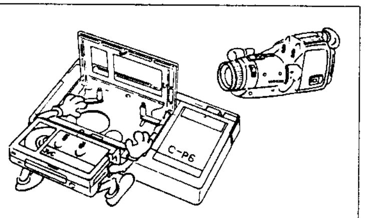
- Be sure to insert the cassette firmly into the slot; otherwise it will be automatically ejected.
- The automatic loading mechanism will operate only when the cassette is inserted correctly.
- When ejecting the cassette using the remote control's EJECT button with the front panel cover closed, make sure that there are no obstructions preventing the front panel cover from opening.

WARNING

- Do not insert fingers or foreign objects into the cassette loading slot since this could lead to injury or damage to the mechanism. Be especially careful with children.
- Do not try to pull out a cassette once automatic loading has started.



Usable Cassettes



Full-Size VHS
E-30 (SE-30**)
E-60 (SE-60**)
E-90
E-120
E-180 (SE-180**)
E-240

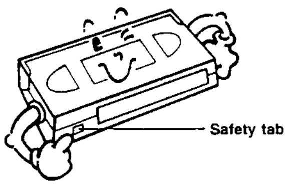
Compact VHS*
EC-30 (SE-C30**)
EC-45 (SE-C45**)

* Compact VHS camcorder recordings (PAL) can be played on this video recorder. Simply place the recorder cassette into a C-P6 Cassette Adapter and it can be used just like any full-sized VHS cassette.

** This video recorder can record on regular VHS and Super VHS cassettes. However, it will record and play back regular VHS signals only. It is not possible to play back a recorded Super VHS tape.

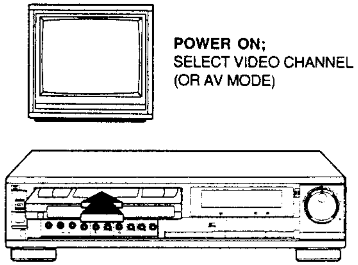
Accidental Erasure Prevention

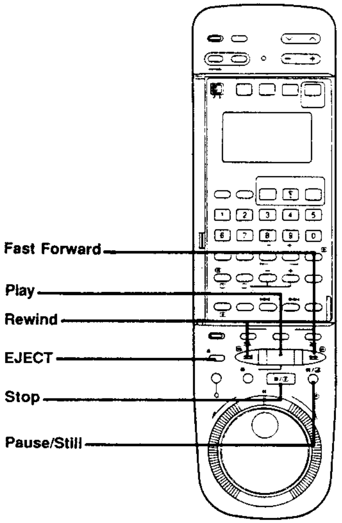
To prevent accidental recording on a recorded cassette, remove its safety tab. To record on it later, cover the hole with adhesive tape.



▶ Playback

The easiest, most basic operation possible with your video recorder is tape playback. Already-recorded signals on a video tape are read by your video recorder and displayed on your TV just like a TV programme.





A LOAD A CASSETTE

1 Insert a cassette.
- The recorder power will come on automatically.
- If the safety tab on the cassette is removed, playback will start automatically.

B TO START PLAYBACK

2 Press ▶ (Play).

C TO STOP PLAYBACK

3 Press ■ (Stop).

D TO REWIND OR FAST-FORWARD

4 Press ◀◀ (Rewind) to rewind the tape.
5 Press ▶▶ (Fast Forward) to fast-forward the tape.
- Press ■ (Stop) to stop rewind or fast-forward.

E TO EJECT THE TAPE

6 Press EJECT.

High-Speed Forward And Reverse Search

During Playback:

1. Press ▶▶ (Fast Forward) for high-speed forward search.
2. Press ◀◀ (Rewind) for high-speed reverse search.
3. Press ▶ (Play) to resume normal playback.
   - For short searches, keep ▶▶ (Fast Forward) or ◀◀ (Rewind) pressed for more than 2 seconds. When released, normal playback will continue.

Still Playback And Frame Advance

During Playback:

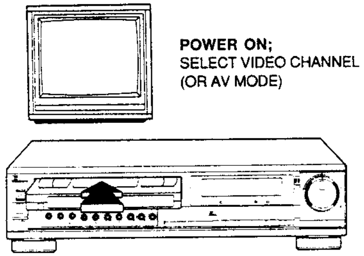
1. Press ❚❚ (Pause/Still) to view a still picture.
2. Press again to advance the picture frame by frame.
3. Press ▶ (Play) to resume normal playback.

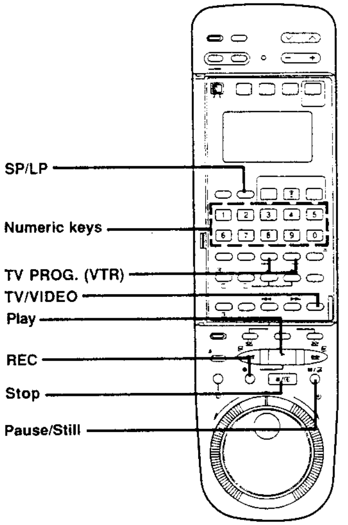
NOTES:

- Tapes with monaural soundtracks (normal audio) are automatically played back in the NORM mode. When playing back tapes with Hi-Fi stereo, bilingual, or audio-dubbed soundtracks, ☞p.67.
- The recorder automatically stops when still continues for more than 5 minutes.
- If the still picture is unstable (vertical jitter) use the recorder's V. LOCK buttons to correct the picture.
- During search playback, some noise bars will appear.
- If noise bars appear during playback, correct using manual tracking. ☞p.66.
- There is no audio during search, still, or frame-by-frame playback.
- *The recorder automatically rewinds when the end of the tape is reached.*

● Recording

TV signals being received by the recorder's built-in tuner can be recorded onto a video tape. This is realtime video recording.





A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B CHOOSE A PROGRAMME

2 Press TV PROG. (VTR) or the numeric keys to select the channel you wish to record.

C SELECT THE TAPE SPEED

3 Press SP/LP.

D TO START RECORDING

4 Press ● REC (Record) and ▶ (Play) simultaneously.

E TO PAUSE RECORDING

5 Press ❚❚ (Pause/Still).
6 Press ▶ (Play) to resume recording.

F TO STOP RECORDING

7 Press ■ (Stop).

To Watch Another Programme While Recording

During Record:

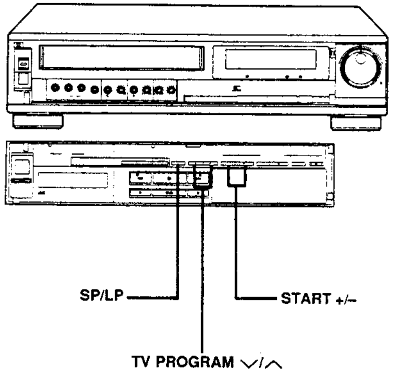
1. If your recorder is connected to the TV via AV connection, press TV/VIDEO.
   - The recorder's VIDEO indicator and the TV broadcast being recorded will disappear.
2. Use the channel controls on the TV to select the other channel you wish to view.
   - The programme selected with the TV channel controls will appear on the TV screen while the one selected with the video recorder's channel controls will be recorded on the tape.
   - If the Premiere decoder is connected to the recorder (☞ p. 55), you can select the Premiere channel as well with the TV channel controls.

NOTES:

- To start recording with the recorder's REC/ITR button, press it once on its own. Pressing REC/ITR more than once activates the Off-Timer. ☞p.70.
- After pause, when recording is resumed, a few frames recorded before the pause may be overlapped by the new recording. This is meant to reduce picture distortion and is not a malfunction.
- The recorder automatically stops when record-pause continues for more than 5 minutes.
- If the Record button does not work, check to see if the cassette's safety tab has been removed.
- When a VPS programme is being broadcast on the selected channel, "VPS" appears on the display panel. ☞p.78 for information on VPS.
- The channel cannot be changed while recording is in progress. To change the channel, engage the record-pause mode, then change the channel.
- The recorder automatically rewinds when the end of the tape is reached during recording.
- For stereo or bilingual recording, ☞p.71.

Timer-Recording

The "Express Timer" introduced here is the quickest method of programming your video recorder's timer. TV shows to be broadcast within 24 hours can be programmed for automatic recording simply by pressing three buttons (conveniently numbered) on your recorder's control panel. For timer programming using your remote control, ☞ p.74. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



Express Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.
- The recorder's display panel will show the channel being received.

PR 12

2 If you want to record another channel, press TV PROGRAM ∨/∧ to change the channel.

3 If you want to change the tape speed, press SP/LP.

B SET THE START TIME

4 Press START +.
- This engages the programme set mode, and the current time will appear.

12:33 _ ˩

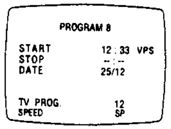
5 Press START +/– to set the start time.
- START + advances the time and START – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ˩

- After the start time is set, "TODAY" or "TOMORROW" will be displayed for 3 seconds.

TO WATCH THE ON-SCREEN DISPLAY

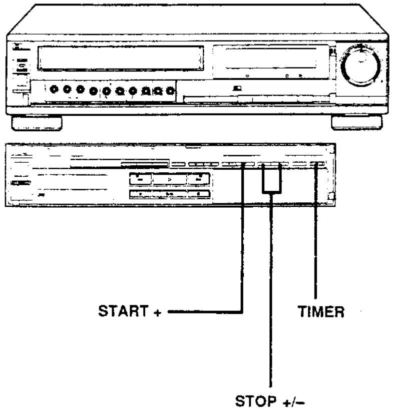
At step B, if the TV is on and is set to the video channel (or AV mode), the data you input will also be shown on the TV screen.



PROGRAM 8

START 12 : 33 VPS
STOP – : –
DATE 25/12

TV PROG. 12
SPEED SP



C SET THE STOP TIME

6 Press STOP +.
- The start time will be transferred over to the stop time position automatically.

16:00 _ ˩ 16:00

7 Press STOP +/– to set the stop time.
- STOP + advances the time and STOP – reverses the time.
- Press briefly to change by 1 minute. Hold the button down to change by 30-minute increments.

16:00 _ ˩ 17:45

D SET TO TIMER MODE

8 Press TIMER.
- The recorder will enter the timer mode and power will go off.

TIMER 12:35

TO CHANGE CHANNELS

If needed, you can change the channel at any time during steps B and C. This changes the channel being received and the channel to be recorded.

PR 26

TO CHANGE THE TAPE SPEED

If needed, you can change the tape speed at any time during steps B and C.

TO DISENGAGE THE TIMER

For safety, your recorder disables all other functions while in the timer mode.
- To use your recorder, first disengage the timer mode by pressing TIMER again. Now all functions will be operable.
- To re-engage the timer, press TIMER.

TO CHECK PROGRAMMED SETTINGS

While in the timer mode, press START + to check the settings you have programmed into the Express Timer. Each time START + is pressed, the display will change: Start Time, Stop Time, Date, Channel, Tape Speed, and "TIMER" again. DO NOT press START + while the timer mode is disengaged because this will clear the Express Timer's memory to make room for a new entry.

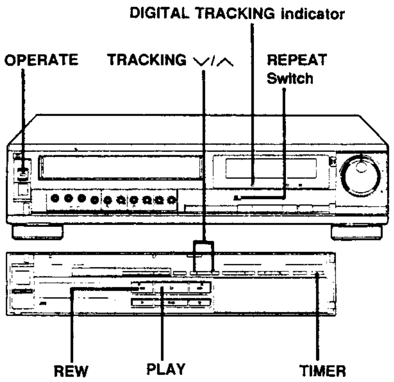
ATTENTION:

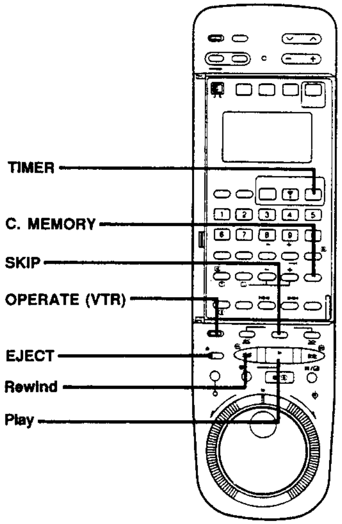
- If you have programmed the timer's PROGRAM 8 (via the on-screen programming facility that is available when an optional VPT adapter is connected, ☞ p. 88), using the Express Timer will clear that data from PROGRAM 8 and replace it with the Express Timer data.

For other timer programming methods, ☞ p.74.
Any questions? ☞ p.78.

For Playback

Take advantage of special functions possible with the recorder's controls or the remote control.





NOTE:

When a new tape is inserted, the recorder enters the automatic tracking mode automatically.

Repeat Playback (Recorder)

Your video recorder can automatically play back the whole tape or an index-marked portion 5 times repeatedly.

1 Set the REPEAT switch to FULL or INDEX.
  - For Index Repeat playback, locate the index code at which you wish to start playback. (Index Search, ☞p.69.)

2 Press PLAY. Repeated playback will start. After repeating 5 times consecutively, playback will stop.
  - Be sure to reset the REPEAT switch to OFF before pressing the PLAY button again; otherwise repeat playback will resume.

Manual Tracking (Recorder)

Your video recorder is equipped with automatic tracking control; the DIGITAL TRACKING indicator lights or blinks when automatic tracking is on. During playback, tracking can be adjusted manually using the TRACKING buttons.

1 Press TRACKING (∨ and ∧) simultaneously for manual override.
  - The DIGITAL TRACKING indicator will go out.

2 Press TRACKING (∨ or ∧) to adjust tracking.

3 Press TRACKING (∨ and ∧) simultaneously to return to automatic tracking.

To adjust tracking during slow motion, simply press TRACKING (∨ or ∧) to obtain the best picture.

Next Function Memory (Recorder and Remote Control)

For automatic start of playback after the tape is rewound:

1 Press ◄◄ (Rewind).

2 Press ► (Play) within 2 seconds.

For automatic power off after the tape is rewound:

1 Press ◄◄ (Rewind).

2 Press OPERATE (VTR) within 2 seconds.

For automatic eject after the tape is rewound: (Remote Control only)

1 Press ◄◄ (Rewind).

2 Press EJECT within 2 seconds.

For automatic timer standby after the tape is rewound:

1 Press ◄◄ (Rewind).

2 Press TIMER within 2 seconds.

- If you want the "next function" to automatically start when the counter reads "0:00:00" (instead of at the beginning of the tape), press C. MEMORY so that the "M" mark appears before pressing ◄◄ (Rewind).

Skip Search (Remote Control)

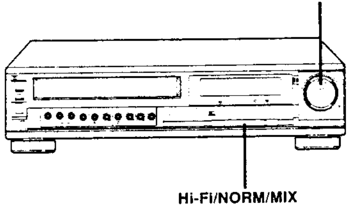
Your recorder offers a simple way of skipping over unwanted sections of recorded TV programmes.

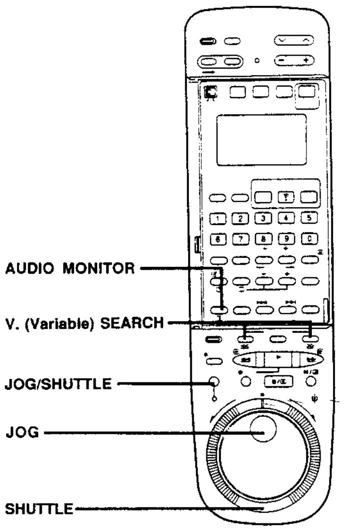
During Playback:

1 Press SKIP from 1 to 4 times.

This fast-motions through 30-sec. to 2-min. of tape.
  - Playback resumes automatically.
  - Press ► (Play) to cancel a Skip Search midway.

The recorder's Jog/Shuttle controls function in the same way as those on the remote control.





NOTES:

- If noise bars appear during slow motion, correct using manual tracking. ☞ p.66.
- During variable-speed search, some noise bars will appear.
- When playing back LP recordings in the search, still, or frame-by-frame playback mode, the picture will be distorted, and there may be a loss of colour.

Variable-Speed Search, Slow Motion, And Jog Control

You can view pictures in slow to fast motion, or frame-by-frame, in either direction.

During Play or Still:

1 Press JOG/SHUTTLE.
  - The LED indicator will light.

2 Turn the outer ring (SHUTTLE) in either direction. The farther the ring is rotated, the faster the search speed. Releasing the ring stops the picture in the Still mode.

or

1 Press either V.SEARCH button. Tape will move in the corresponding direction.
  - The more times the button is pressed, the faster the search speed.
  - To decrease speed, press the button for the opposite direction.

During Play or Still:

1 Make sure that the LED indicator is lit.
  - If not, press JOG/SHUTTLE.

2 Turn the inner dial (JOG) in either direction for jog control. The tape moves forward or backward frame-by-frame at the speed with which the dial is turned.

To resume normal playback, press ► button.

Soundtrack Selection

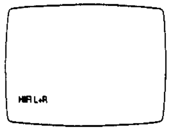
Your video recorder is capable of recording three soundtracks (HIFI L, HIFI R and NORM) simultaneously, and playing back the selected soundtrack.

- Pressing AUDIO MONITOR (on the remote control) changes the channel:

L+R → L → R

- Pressing Hi-Fi/NORM/MIX (on the recorder) changes the track:

HIFI → NORM → MIX



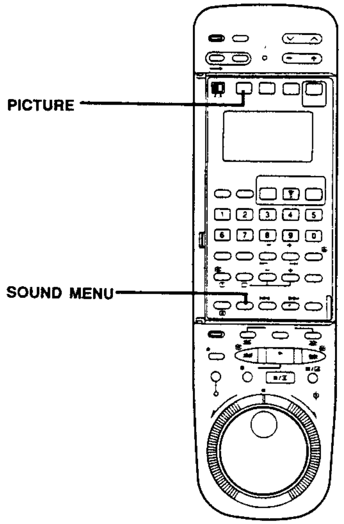
Usual settings

HIFI L + R	: for Hi-Fi stereo tapes
HIFI L or HIFI R	: for bilingual tapes
MIX L + R	: for audio-dubbed tapes

NOTE:

Normally use the HIFI L + R position. Then Hi-Fi stereo tapes are played back in stereo, and tapes with normal audio only are played back automatically in the NORM mode.

▶ For Playback (cont'd)



Picture Control (Remote Control)

Your video recorder has a built-in video processor that lets you choose the type of playback picture that's best for any given application.

During Play:

1 Press PICTURE as many times as required to reach the desired setting.
- The display panel shows the setting for 5 seconds.

Display Panel	When To Use
ENHANCED	When viewing tapes with noise due to repeated playback, such as rental videos.
TAPE DUB	When editing from or to another recorder.
SOFT PIX	When you want a soft picture.
SHARP PIX	When you want a sharp picture.
OFF	When no modification is required.

Sound Menu (Remote Control)

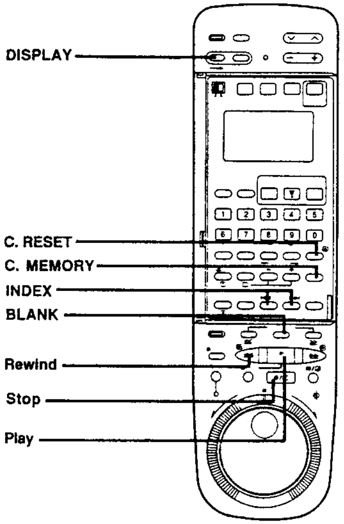
Your recorder has a built-in sound processor that lets you enhance sound reproduction with Stereo Wide or Simulated Stereo effects. You can apply these effects not only to tape playback sound, but to TV signals received via the recorder's built-in tuner or external signals applied to the recorder's input connectors.

1 Press SOUND MENU as many times as required to reach the desired setting.

VCR Display	When to use
MUSIC - ST WIDE	When viewing stereo music programs.
THEATER - ST WIDE	When viewing stereo films.
MUSIC - SIM STEREO	When viewing monaural music or sports programs.
THEATER - SIM STEREO	When viewing monaural films.
OFF	When no modification is required.

NOTE:
- Sound Menu effects are available only with AV connection (☞ p.54). With only RF connection, Sound Menu effects are not available.

◀◀ ▶▶ For Tape Access



NOTES:
- Press ▶ (Play) or ■ (Stop) to cancel Index Search or Blank Search.
- If the end of the tape is reached during Index Search, the mode is cancelled and the tape is rewound to the beginning.
- When a fully recorded tape is used for re-recording new material, Blank Search can be used to detect the end of the new material.

Realtime Tape Counter

Your recorder's tape counter displays the hours, minutes, and seconds of a taped programme. During playback, your recorder's display panel will show a counter reading unless you change it using the DISPLAY button. To reset the counter to "0:00:00" at any time press C. RESET. Also the counter is automatically reset whenever you load a new cassette.

Counter Memory (Remote Control)

During Playback:

1 Press C. RESET at a point you wish to locate later.
- The counter will read "0: 00: 00".

2 Press C. MEMORY.
- "M" will appear in front of the counter digits.

3 When you wish to return to that point, press ■ (Stop) and then press ◀◀ (Rewind).
- The tape will rewind and stop at about "0: 00: 00" automatically.

M 0:00:00

4 To cancel the Counter Memory mode, press C. MEMORY.

Index Search (Remote Control)

This function gives you quick access to any one of 9 index codes in either direction. Your recorder automatically marks index codes at the beginning of each recording.

During Playback or Stop:

1 Press INDEX |◀◀ or ▶▶| . "INDEX –1" or "INDEX +1" will be displayed and search will begin in the corresponding direction.

2 If you wish to access index codes 2 through 9, press INDEX repeatedly until the correct index number is displayed.
- When the specified index code is found, playback will start automatically.

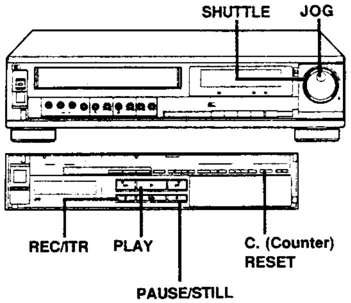
Blank Search (Remote Control)

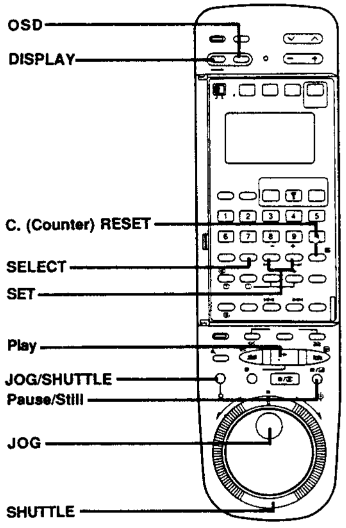
This function lets you quickly locate the blank portion of a partially recorded tape.

During Stop:

1 Press BLANK.
- The recorder automatically fast-forwards or rewinds to the end of the recorded portion of tape, and stops.
- The tape's remaining time is automatically displayed. Press DISPLAY to return to the realtime counter display.

For Recording





NOTE:

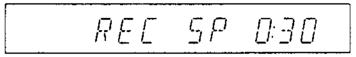
- The remaining time is inaccurate while the display is blinking. When blinking stops, the remaining time is shown.

Instant Timer Recording (Off Timer) (Recorder)

You can start a recording and then set the recorder to shut off automatically after a set duration.

During Record:

1. Press REC/ITR (on the recorder). A "REC SP 0:30" or "REC LP 0:30" indication appears, advising that power will switch off after 30 minutes.



- "ITR 0:30" will be displayed on the TV screen.

2. Press REC/ITR again to delay the off-time by 30-minute increments (up to 4 hours).
   - For a more precise setting, use the SELECT/SET buttons on the remote control unit to set the exact time required (possible up to 8 hours and 59 minutes).

Retake (Recorder and Remote Control)

You can cut out unwanted parts of a TV programme while you're recording it.

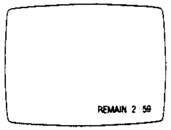
During Record:

1. Press PAUSE/STILL.
2. Turn the JOG dial or SHUTTLE ring in either direction to locate the beginning of the unwanted part.
   - When using the remote control unit, first press the JOG/SHUTTLE button so that the LED indicator lights.
   - Release the dial or ring to return to the Record-Pause mode.
3. Press PLAY when you wish to resume recording.

Remaining Tape Time Indication
(Remote Control)

When you need to know the tape's remaining time.

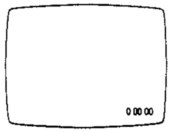
1. Press DISPLAY until "REMAIN" appears on the screen. Approximate remaining tape time is displayed.
2. To clear the screen, press OSD.
   - The display panel also shows remaining tape time, but, during recording, changes back to the "REC" mode display after 5 seconds.

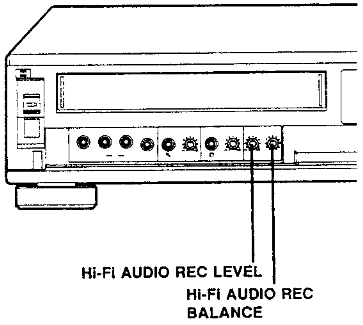


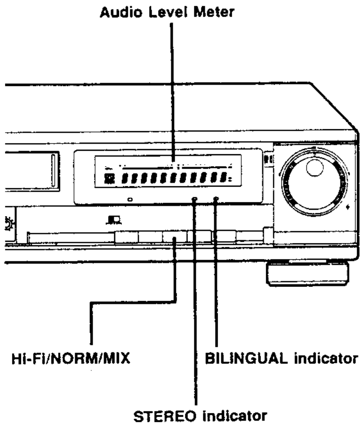
Elapsed Recording Time Indication
(Remote Control)

When you need to know the exact time of a recording.

1. Press C. (Counter) RESET to reset the counter to "0:00:00" and then start recording.
2. Press DISPLAY anytime when you want to check the elapsed recording time.
3. To clear the screen, press OSD.







Hi-Fi Audio Recording Level Control

In most cases, setting the Hi-Fi AUDIO REC BALANCE and LEVEL controls to the center position will provide satisfactory results. If necessary, you can adjust the Hi-Fi audio recording level more precisely by referring to the audio level meter above the message display.

- Turn the BALANCE control to adjust the balance between left and right channels.
- Turn the LEVEL control to adjust the level. When the level meter lights up to or near 0 dB with the loudest signal being applied, the recording level is optimum.

NOTES:

- Make sure that the "HIFI L + R" position is selected with the AUDIO MONITOR button. ☞p.67.
- Noise will increase if the recording level is too low, while distortion will increase if the level is too high.

Stereo And Bilingual

Your recorder is equipped with a Sound-Multiplex decoder for reception of stereo and bilingual broadcasts.

- When a stereo programme is being received, the STEREO indicator lights.
- When a bilingual programme is being received, the BILINGUAL indicator lights.

To Record Stereo Programmes

Stereo programmes are automatically recorded in stereo on the Hi-Fi audio track (with the normal audio track recording mixed L and R channel sound). No special operation is required. Simply follow the basic recording procedure.

- To listen to the stereo soundtrack while recording, select "HIFI L+R" with AUDIO MONITOR. ☞p.67

NOTE:

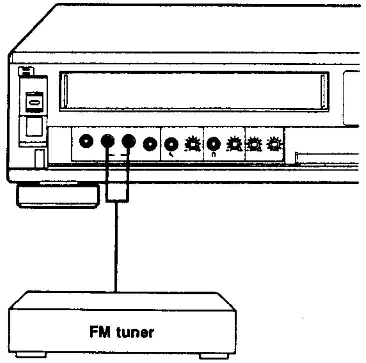
- If the quality of stereo sound being received is poor, the STEREO indicator will go off, and the broadcast will be received in monaural with better quality.

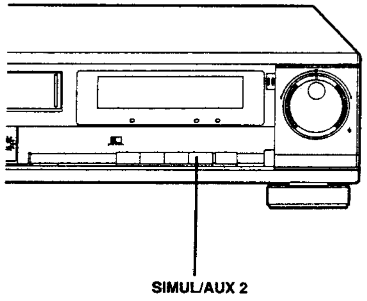
To Record Bilingual Programmes

Bilingual programmes are automatically recorded in bilingual on the Hi-Fi audio track. The main soundtrack will be recorded on the normal audio track.

- To listen to the Hi-Fi soundtrack during recording, select "HIFI L" for Main, and "HIFI R" for Sub.
- To listen to the normal soundtrack, select "NORM" with the Hi-Fi/NORM/MIX button on the recorder.

For Recording (cont'd)





Simulcast Recording

Your recorder lets you record an audio programme while recording a TV programme. In the Simulcast mode, the TV soundtrack is recorded on the normal audio track and the external audio programme is recorded on the Hi-Fi audio track, so you can have two independent programmes. If FM simulcast TV programmes are available, record the TV programme and its FM-broadcast soundtrack simultaneously.

PREPARATION

1 Connect the FM tuner to the rear panel AUDIO IN or front panel A (L, R) connectors.
- Front panel connections have priority.

2 Set the FM tuner to the desired broadcast.

PROCEDURE

3 Select the TV programme you wish to record.

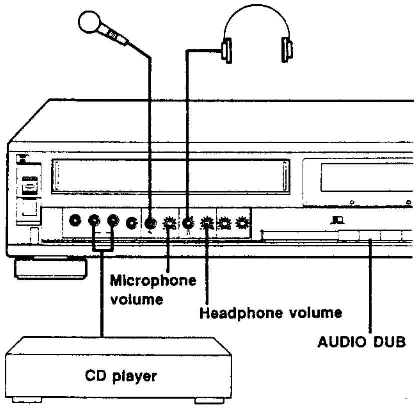
4 Select the SIMULCAST mode by pressing the SIMUL/AUX 2 button.

5 Start recording.

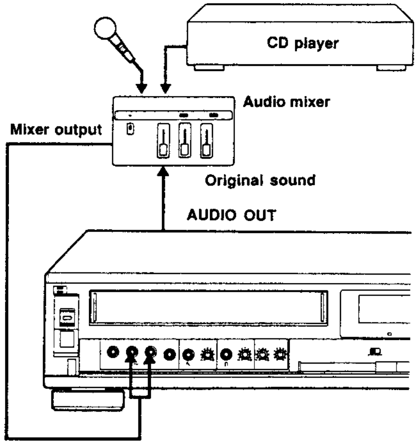
NOTES:
- If you stop recording with the PAUSE/STILL button to avoid unwanted TV programme material, the audio programme is also cut.
- After finishing simulcast recording, be sure to press the SIMUL/AUX 2 button to cancel the Simulcast mode, otherwise it is not possible to record on the Hi-Fi track from the built-in tuner.

Your video recorder is well equipped to modify your recorded tapes into more attractive compositions.

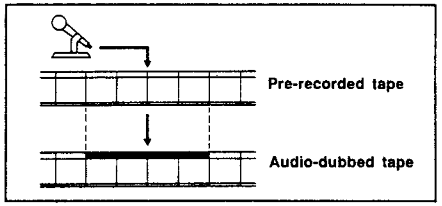
Simple audio dubbing



With audio mixer



NOTE:
- Audio dubbing is not possible with cassettes whose safety tab has been removed.



Audio Dubbing

Audio dubbing replaces the normal audio sound of a previously recorded tape with a new soundtrack. Add your personal touch by recording commentary, etc.

PREPARATION

1 Connect a microphone to the MIC jack.

2 Select the AUX INPUT 2 mode. (First engage the AUX INPUT mode with TV PROGRAM, then press SIMUL/AUX 2.)

PROCEDURE

3 Adjust the input level with the microphone volume control.

4 Start playback and engage the Still mode at the point from which you wish to start audio dubbing.
- Turn the SHUTTLE ring in either direction to quickly locate the desired scene. Simply release the SHUTTLE ring, and the Still mode will be engaged automatically.
- Then turn the JOG dial for more precise location of the audio dubbing start point.

5 Press the AUDIO DUB button.

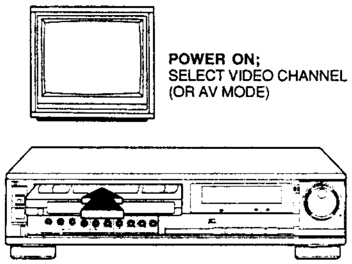
6 Press the PLAY button.
- Audio dubbing will start.

7 Press the PAUSE/STILL button to stop audio dubbing temporarily.

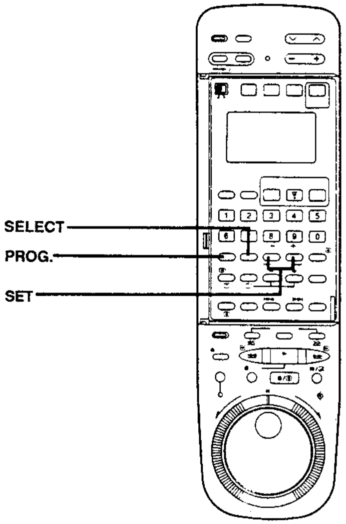
NOTES:
- When monitoring the sound during Audio Dubbing, the normal soundtrack will be automatically selected. If you wish to hear the mixed sound (Hi-Fi + normal soundtracks), press the Hi-Fi/NORM/MIX button to select the MIX mode. ☞ p.67.
- Audio dubbing will stop automatically at the counter reading of "0:00:00", and the recorder will enter the Play mode. Check the counter before starting audio dubbing.
- If you wish to use audio sources other than microphone input, connect the audio equipment to the front panel A (Audio) or rear panel AUDIO IN connectors. (Front panel connections have priority ☞ p.85. For monaural equipment, use the L connector.) If both the microphone and another audio source are connected, mixed recording is possible.
- Audio dubbing is also possible with input via the 21-pin AUDIO/VIDEO socket. In this case, use the AUX INPUT mode.
- If howling occurs, move the microphone away from the TV or reduce the TV sound volume. If necessary, monitor the sound with headphones.
- After finishing audio dubbing in the AUX INPUT 2 mode, be sure to press the SIMUL/AUX 2 button, otherwise the SIMUL mode will be engaged when you start recording of TV programmes.

For Timer-Recording

The on-screen and LCD timer programming methods are introduced here. Both have different advantages. With on-screen programming, you can follow easy-to-see guides on your TV screen. With LCD programming, you can transfer the programmed data to the recorder anytime when necessary. TIMER PROGRAMMING IS NOT POSSIBLE UNLESS THE CLOCK HAS BEEN SET.



POWER ON;
SELECT VIDEO CHANNEL
(OR AV MODE)



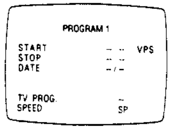
On-Screen Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

B ACCESS THE ON-SCREEN PROGRAM DISPLAY

2 Press PROG.
- You are ready to input data into Program No. 1.
- To change the program number (1 – 7), press SET.

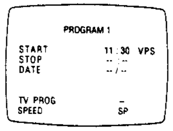


```
PROGRAM 1
START      -- --   VPS
STOP       -- --
DATE       --/--

TV PROG.    --
SPEED       SP
```

C INPUT THE START TIME

3 Press SELECT, and then SET to input the hour.

4 Press SELECT, and then SET to input the minute.

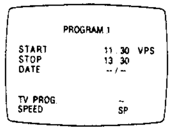


```
PROGRAM 1
START      11:30   VPS
STOP       --:--
DATE       --/--

TV PROG     --
SPEED       SP
```

D INPUT THE STOP TIME

5 Press SELECT, and then SET to input the hour.

6 Press SELECT, and then SET to input the minute.

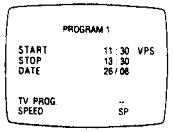


```
PROGRAM 1
START      11 30   VPS
STOP       13 30
DATE       --/--

TV PROG.    --
SPEED       SP
```

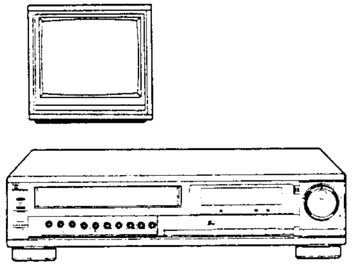
E INPUT THE DATE

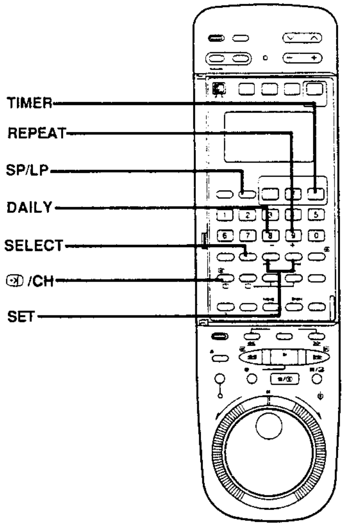
7 Press SELECT, and then SET to input the day.

8 Press SELECT, and then SET to input the month.



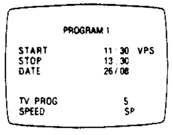
```
PROGRAM 1
START      11:30   VPS
STOP       13 30
DATE       26/08

TV PROG.    --
SPEED       SP
```





F INPUT THE CHANNEL NUMBER

9 Press SELECT, and then SET to input the channel.
- The screen colour changes to green.
- Normally, you should leave "VPS" on so you can take advantage of VPS recording. You can cancel VPS by pressing the ⊕/CH button whenever the memory program is open. If you have any questions about VPS, ☞p.78.



```
PROGRAM 1
START      11 30   VPS
STOP       13 30
DATE       26/08

TV PROG     5
SPEED       SP
```

G SELECT THE TAPE SPEED

10 Press SELECT, and then SP/LP.

H END ONE PROGRAM

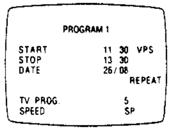
11 Press SELECT.
- The program number will blink.
- To make corrections, advance with SELECT to the item you wish to change and input new data with SET.
- If you need to set another program, press SET and repeat steps C through H.

I SET TO TIMER MODE

12 Press TIMER.
- The recorder will enter the timer mode and power will go off.
- Press TIMER again to release the timer mode.

Variations in Step E (Weekly Program)

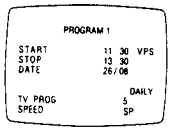
This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press REPEAT (numeric key "9") and then enter the date.



```
PROGRAM 1
START      11 30   VPS
STOP       13 30
DATE       26/08
                REPEAT
TV PROG.    5
SPEED       SP
```

Variations in Step E (Daily Program)

This function lets you set the recorder to timer-record at the same time everyday. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press DAILY (numeric key "8") and then press SELECT.
- To record a daily serial starting on a certain day, press DAILY and then enter the date.



```
PROGRAM 1
START      11 30   VPS
STOP       13 30
DATE       26/08
                DAILY
TV PROG     5
SPEED       SP
```

CAUTION:
Make sure that the tape length is enough to record the intended programme. If the tape finishes before the stop time is reached, the cassette is automatically ejected. If the recorder is placed inside a rack, there must be sufficient clearance to allow the front panel cover to open unobstructed.

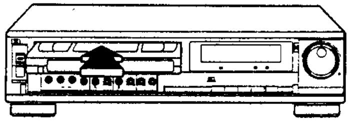
NOTE:
The data you input will also be shown on the message display pannel.

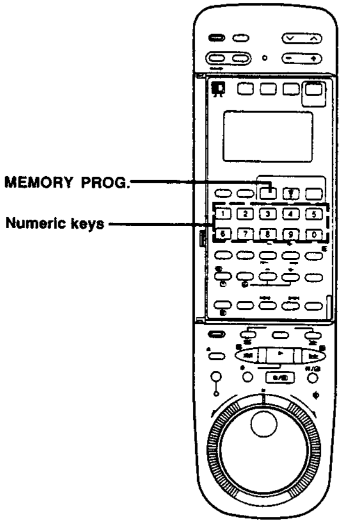
TO MAKE CORRECTIONS

Press SELECT so that the item you want to change blinks, and press SET to set the new data.

Any questions? ☞ p.78.

For Timer-Recording (cont'd)





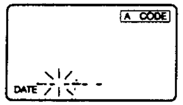
LCD Timer Programming

A LOAD A CASSETTE

1 Insert a cassette with the safety tab in place.
- The recorder power will come on automatically.

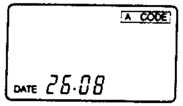
B ACCESS THE LCD TIMER PROGRAM

2 Press MEMORY PROG.



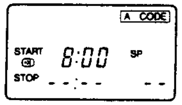
C INPUT THE DATE

3 Press the appropriate numeric keys.
- Example: For 26th August, press 2 6 0 8.



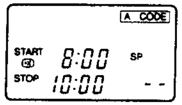
D INPUT THE START TIME

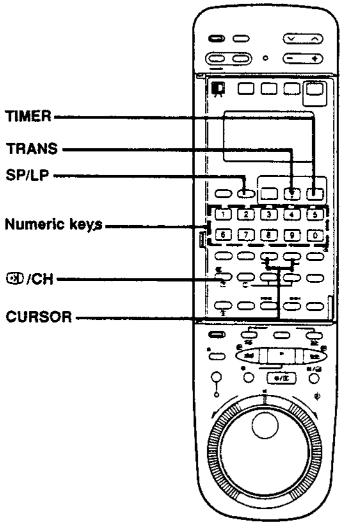
4 Press the appropriate numeric keys.
- Example: For 8:00, press 0 8 0 0.



E INPUT THE STOP TIME

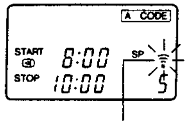
5 Press the appropriate numeric keys.
- Example: For 10:00, press 1 0 0 0.





F INPUT THE CHANNEL NUMBER

6 Press the appropriate numeric keys.
- Example: For channel 5, press 5.
- After the channel has been entered, the transfer-ready mark will appear and blink.
- Normally, you should leave " ⊛ " on so you can take advantage of VPS recording. You can cancel VPS by pressing the ⊛/CH button whenever the memory program is open. If you have any questions about VPS, ☞p.78.



G SELECT THE TAPE SPEED

7 Press SP/LP.

H TRANSFER THE DATA TO THE RECORDER

8 Press TRANS with the remote control directed to the recorder's Remote Sensor window.
- You will see "PROGRAM 1" on the display panel, telling you that the data has been successfully transferred to the recorder's Program 1 memory.

I SET TO TIMER MODE

9 Press TIMER.
- The recorder will enter the timer mode and power will go off.
- To disengage the timer mode, press TIMER again.
- To return to the clock display, press MEMORY PROG.

Variations in Step C (Weekly Program)

This function lets you set the recorder to timer-record at the same time on the same day every week. Use it to record weekly serials.
- First press numeric key "9" (REPEAT) and then enter the date.

Variations in Step C (Daily Program)

This function lets you set the recorder to timer-record at the same time every day. Use it to record daily serials.
- To record a daily serial starting on the day of setting, press numeric key "8" (DAILY) and then press CURSOR → until the display changes to time input mode.
- To record a daily serial starting on a certain day, press numeric key "8" (DAILY) and then enter the date.

TO MAKE CORRECTIONS

During steps C – F, press either CURSOR button so that the item you want to change blinks, and enter new data.

Any questions? ☞ p.78.

For Timer-Recording (cont'd)

On Checking And Cancelling Programs

Since executed programs are automatically cleared from memory (except those for daily and weekly serials), cases where the entire memory is full should be rare. If this should happen, check the preset programs and cancel one or more to make room for the new program(s) you wish to input.

TO CANCEL A PROGRAM

1. Press PROG.
   - Program 1 is displayed with the number blinking.
2. Press SELECT to review the program contents in succession.
3. Press CANCEL to erase the program from memory.
   - You can press CANCEL at any stage while the program is open.
   - To erase another program, press SET when a blinking program number is displayed.

NOTE:

Cancelling programs is also possible using the remote control and on-screen display. Press PROG. and check the program contents on the screen using SELECT and SET. Press CANCEL while an unnecessary preset program is on the screen.

Some Facts On Timer Operation

- If the end of the tape is reached during timer-recording, the cassette is automatically ejected and recorder's power is switched off with "TIMER REC" and "TAPE END" flashing alternately on the message display panel.
- When timer-recording is successfully completed, the recorder's power is automatically switched off.
- Since the timer starts and stops recording based on the time being kept by the recorder's built-in clock, the clock's time must be accurate for correct timer-recording results.

VPS Recording

Now available from some TV stations, VPS (Video Program System) is a service designed to assure safe, accurate timer-recording. With this system, special code signals are transmitted together with the audio/video signals. These code signals control your video recorder and have precedence over times you preset in the timer. This means that your recorder will start and stop recording when the preset TV programmes actually start and end — even if the broadcast time of a preset TV programme is changed.

TO USE VPS SERVICE

- For each timer program, the initial setting is "VPS ON" and you will see "VPS" on the display panel together with a channel number. You do not have to cancel "VPS" even for non-VPS programmes, because those programmes will be recorded at the preset times.
- To cancel "VPS", press the ⊡/CH button. Pressing the ⊡/CH button alternates the setting, and "VPS ON" or "VPS OFF" is displayed for 2 seconds.
- When you open the LCD timer memory, the LCD display always shows " ⊡ ". To cancel " ⊡ ", press the ⊡/CH button before transferring the memory data to the recorder.

Error Messages

The following error messages may appear on the message panel when you press the TIMER button to engage the Timer Standby mode. Here's why, and what you should do.

NO CASS

- Displayed for 5 seconds and the Timer Standby mode is cancelled.

WHY: There is no cassette in the recorder.
WHAT TO DO: Insert a cassette. Press TIMER again.

NO REC TAB

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: The inserted cassette has its safety tab removed.
WHAT TO DO: Eject that cassette. Insert a cassette with its safety tab intact. Or cover the safety tab hole of the cassette with adhesive tape and re-insert it. Press TIMER again. ☞p.61.

NO PROGRAM

- Displayed for 5 seconds. The Timer Standby mode is cancelled.

WHY: There are no preset programs in memory.
WHAT TO DO: Check the programmed data and re-program it as necessary. Press TIMER again.

TAPE END

WHY: If this and "TIMER REC" are alternately displayed, it means that the end of the tape was reached while timer-recording was in progress. Therefore, the preset program may not be recorded in its entirety.

SET CLOCK

WHY: This means the clock must be set. It's displayed when time-keeping is terminated due to a power failure or because the recorder's power plug was pulled from the AC outlet.
WHAT TO DO: Set the clock. ☞p.56.

- If power was interrupted, it's also likely that all preset timer programming data has been erased. Please check and re-program as necessary.

The following messages may be encountered when the TRANS button of the remote control is pressed. ☞p.77.

PROGRAM (with number)

- Displayed for 5 seconds.

WHY: The transferred data has been stored in that program number. (The smallest vacant program number is always selected automatically.)

TRANS ERR

- Displayed for 5 seconds.

WHY: Data was not successfully transferred. The program may have been incorrectly preset, or the recorder's clock has not been set.
WHAT TO DO: Check the LCD program, and re-program as necessary. Transfer the correct data.

PROG FULL

- Displayed for 5 seconds.

WHY: All the recorder's timer programs (1 – 7) are preset.
WHAT TO DO: Cancel unnecessary programs, and transfer again.

……

Other Messages

The following messages may also be encountered during timer-recording.

TIMER (with current hour)

WHY: The recorder is in the Timer Standby mode. This is the normal display you should see when you press the TIMER button.

TIMER REC

WHY: Normal display while timer-recording is in progress.

For Convenience

Setting The Clock Forward Or Backward By One Hour (Daylight Saving Time Adjustment)

TO ADVANCE THE TIME BY ONE HOUR

1. Press the remote control's SUMMER TIME ADJUST button and quickly release.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

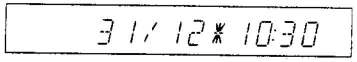
TO SET THE TIME BACK BY ONE HOUR

1. Keep SUMMER TIME ADJUST pressed for more than 2 seconds.
2. Press the TRANS button.
   - The revised time is transferred to the recorder.

Locking The Recorder's Controls

To avoid unwanted operation and prevent accidental recording or other interference, use the Child Lock function.

1. Press the remote control's OPERATE (VTR) button to turn the recorder's power off. Keep this button pressed for about 2 more seconds after the power LED indicator has gone off.
   - The Child Lock indicator (⚷) will appear between the date and time on the display panel.



2. Child Lock is automatically deactivated when you switch the recorder's power on again with the remote's OPERATE (VTR) button.
   - Pressing the TIMER button during timer-recording also deactivates the Child Lock mode.

NOTES:

- While the Child Lock mode is engaged, make sure you keep your remote control in a safe place inaccessible to children.
- Timer-recording is possible in the Child Lock mode. After timer-recording has been performed, the Child Lock mode remains in effect.

Remote A/B Code Switching

The remote control is capable of controlling two JVC video recorders independently; one set to respond to your remote control's A code control signals and another set to respond to B code control signals. The remote control is preset to send A code signals (indicated by " A CODE " on the LCD) because your video recorder is initially set to respond to A code signals. You can easily modify your video recorder to respond to B code signals.

1. Unplug the recorder's power cord from the AC outlet.
2. Set the A/B CODE switch to B. (" B CODE " will appear on the LCD.)
3. Plug the power cord back into the AC outlet. Do not use other remote controls at this stage.
4. Turn the recorder power on using the remote control's OPERATE (VTR) button. The recorder will now only respond to B code signals.

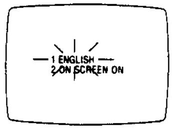
NOTE:

Some TV sets may malfunction in response to the B mode. If this happens switch back to the A mode.

On-Screen Set Up

Language Select

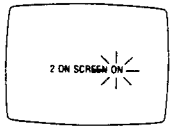
Although the preset on-screen language is English, you can set your video recorder to display on-screen messages in a choice of 10 languages (ENGLISH, DEUTSCH, FRANCAIS, ITALIANO, ESPANOL, NEDERLANDS, SVENSKA, NORSK, SUOMI, and DANSK).



1. Press OSD on the remote control for longer than 2 seconds.
2. Press SET + or – until your desired language is displayed.
3. Press OSD while the language is blinking.

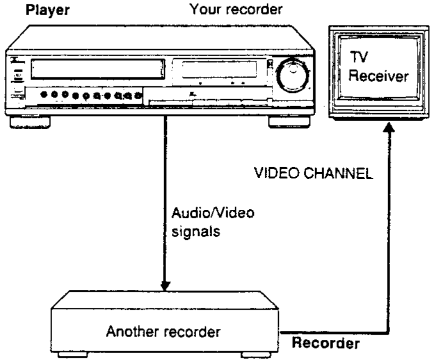
On-Screen Display Function ON/OFF

If you do not want on-screen displays, the function can be cancelled.



1. Press SELECT after step 1 above.
2. Press either SET button.
3. Press OSD while the status is blinking.
   - Even with the function set to OFF, "PAUSE" is displayed for as long as the Pause mode is engaged. Of course, on-screen timer programming is not affected either.

For Editing



Editing To Another Recorder

In tape-to-tape editing, your recorder can also be used as the playback unit.

PREPARATION

1. Connect your recorder's AUDIO/VIDEO to the audio and video input connectors of the recording deck.
2. Load the source tape in the player and the recording tape in the recorder.
3. Select the TAPE DUB mode with the remote's PICTURE button. ☞ p.68
4. Engage the recorder's AUX mode.

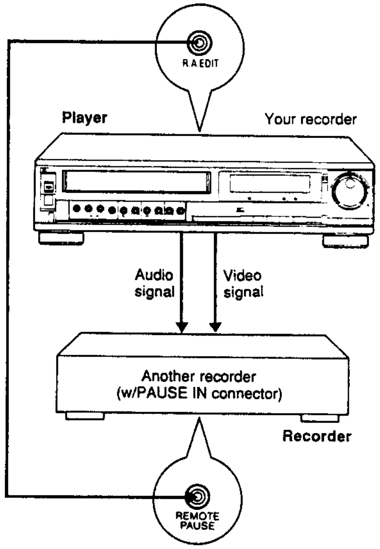
OPERATION

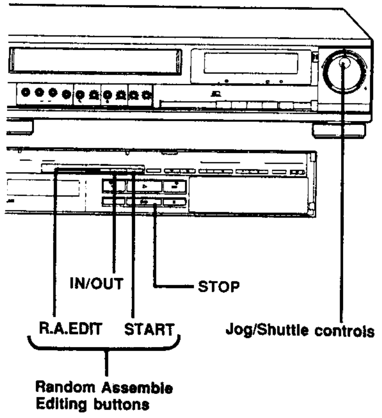
5. Put the recorder in the Record-Pause mode.
6. Play back the source tape to search for a scene to be edited.
   - Turn the SHUTTLE ring in either direction to quickly locate the desired scene. Simply release the SHUTTLE ring, and the Still mode will be engaged automatically.
   - Then turn the JOG dial for more precise location of the scene to be edited.
7. Press both the player's and recorder's PLAY buttons simultaneously.
8. Press the recorder's PAUSE button to stop editing.
9. Repeat steps 6 through 8 to continue editing.

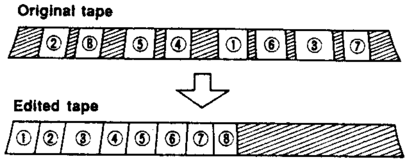
NOTE:

- If you do not want to record on-screen messages on the edited tape, cancel the on-screen display. ☞ p.80

For Editing (cont'd)


R.A.EDIT
Player
Your recorder
Audio signal
Video signal
Another recorder
(w/PAUSE IN connector)
Recorder
REMOTE PAUSE


IN/OUT
STOP
R.A.EDIT
START
Jog/Shuttle controls
Random Assemble Editing buttons


Original tape
②
⑧
⑤
④
①
⑥
③
⑦
Edited tape
①
②
③
④
⑤
⑥
⑦
⑧

Random Assemble Editing

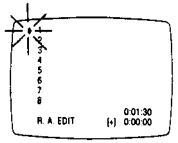
This function makes it easier to create edited videos when your recorder is used as the source player in combination with another video deck which is equipped with a PAUSE (i.e. remote PAUSE IN) terminal. You can pre-program up to 8 scenes or "cuts" for automatic editing in the sequence you have specified.

PREPARATION

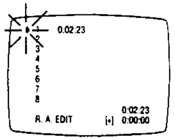
1. Connect your recorder's AUDIO/VIDEO to the audio and video input connectors of the recording deck.
2. Connect your recorder's R.A.EDIT connector to the recording deck's PAUSE connector.
3. Turn both units on.
4. Engage the recorder's AUX mode.

OPERATION

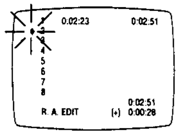
5. Insert a recorded cassette into your recorder, and insert a cassette (with safety tab intact) into the recording deck.
6. Play back the tape in your recorder.
7. Press the R.A.EDIT button.
   - On-screen display is superimposed on the video playback.


3
4
5
6
7
8
0:01:30
R. A. EDIT
[+] 0:00:00

8. Use the Jog/Shuttle to search for the point where you want an edited scene to start, and press IN/OUT.
   - The cut-in point is registered in memory.

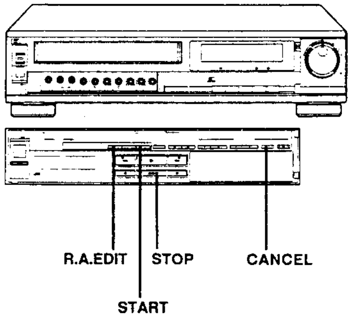

1 0:02:23
2
3
4
5
6
7
8
0:02:23
R. A. EDIT
[+] 0:00:00

9. Use the Jog/Shuttle to search for the point where you want the scene to end, and press IN/OUT.
   - The cut-out point is registered in memory.
   - The total reading "[+]" displays the total running time of the edited scenes.

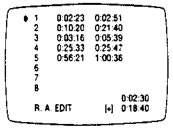

1 0:02:23 0:02:51
2
3
4
5
6
7
8
0:02:51
R. A. EDIT
[+] 0:00:28

10. Specify additional scenes by repeating steps 8 – 9.
11. Put the recording deck in the Record-Pause mode.

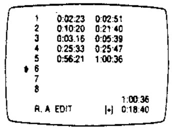
Continued on next page.


R.A.EDIT
STOP
CANCEL
START

12. Press START.
    - The function begins automatic editing; all the specified scenes are copied to the recording deck in sequential order.
    - The on-screen display remains superimposed while your recorder searches for each scene (the blinking cursor points to the scene number presently being searched), and is not displayed while the scenes are being edited.


1 0:02:23 0:02:51
2 0:10:20 0:21:40
3 0:03:16 0:05:39
4 0:25:33 0:25:47
5 0:56:21 1:00:36
6
7
8
0:02:30
R. A. EDIT
[+] 0:18:40

    - While a scene is being searched, the recording deck automatically enters the Record-Pause mode.
    - When Random Assemble Editing is finished, your recorder enters the Still mode, the recording deck enters the Record-Pause mode, and the cursor blinks at the next available scene number.

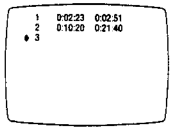

1 0:02:23 0:02:51
2 0:10:20 0:21:40
3 0:03:16 0:05:39
4 0:25:33 0:25:47
5 0:56:21 1:00:36
6
7
8
1:00:36
R. A. EDIT
[+] 0:18:40

13. Press R.A.EDIT again.
    - The on-screen display disappears.
14. Press STOP on both decks to end Random Assemble Editing.

TO MAKE CORRECTIONS

During step 8 or 9, you can correct a cut-in or cut-out point. Each time the CANCEL button is pressed, the immediately preceding point is cleared and can be re-set.

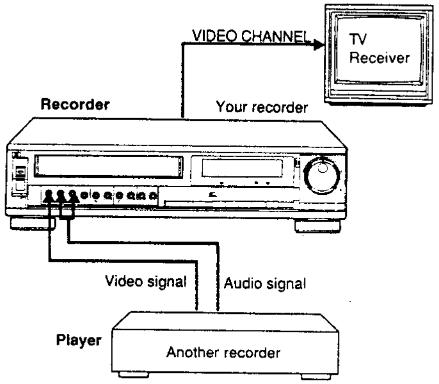
- Example: Here, the cut-out point for "2" can be changed by pressing CANCEL once (to clear it) and re-setting it.By pressing CANCEL more times, you can back up to previous points for re-setting, but all points in between will be cleared in the process. (e.g. To reach the cut-out point for "1", the cut-in and -out points for "2" will be cleared.)

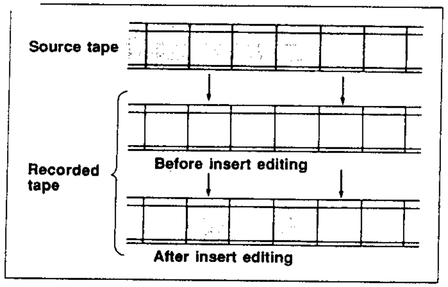

1 0:02:23 0:02:51
2 0:10:20 0:21:40
3

NOTES:

- When editing, there may be a discrepancy of about 2 seconds on the playback tape between the locations you chose as cut-in/out points and the locations the recorder recognizes as those points.
- For any scene, the cut-out point must have a counter reading that is at least 1 second after the cut-in point. A cut-out point with a counter reading less than or the same as the cut-in point will not be registered.
- Since the playback deck prerolls during Random Assemble Editing, there must be at least 15 seconds worth of recorded material prior to any cut-in point on the playback tape.
- If the search time for a cut-in point exceeds 5 minutes, the recording deck's Record-Pause mode will be cancelled and editing will not take place.

For Editing (cont'd)





NOTES:

- Suitable leads can be obtained from your dealer.
- If you do not want to record on-screen messages on the edited tape, cancel the on-screen display. ☞ p.80
- Insert editing is not possible with cassettes whose safety tab has been removed.
- Insert editing cannot be started from a non-recorded segment.
- In insert editing, the recording speed (SP/LP) is determined by the previous recording to be replaced. If the previous recording's speed changes within a single edit, the inserted picture will be distorted at the switching point.

Editing From Another Recorder

Tape-to-tape editing is possible using another deck as the playback unit and your recorder as the recording unit.

PREPARATION

1. Connect another video recorder to your recorder.
   - To select the input connectors and the corresponding external input mode, refer to the table on next page.
2. Engage the external input mode.
3. Select the TAPE DUB mode with the remote's PICTURE button. ☞ p.68

OPERATION

4. Load the source tape in the player, and the recording tape in your recorder.
5. Select the recording speed (SP or LP).
6. Put your recorder in the Record-Pause mode.
7. Play back the source tape to search for scene to be edited.
8. Press the recorder's PLAY button where you want to start editing.
9. Press the recorder's PAUSE button to stop editing.
10. Repeat steps 7 through 9 to continue editing.

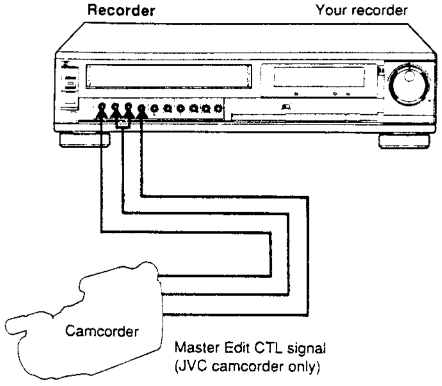
Insert Editing

OPERATION

Insert editing replaces part of the recorded scene with new material. Both the picture and Hi-Fi audio soundtrack are replaced with new ones, while the normal audio soundtrack remains unchanged. If you wish to change the normal audio track as well, use the audio dubbing function simultaneously.

Follow the above "Preparation" instructions and then...

1. Load the source tape in the player, and the recording tape in your recorder.
2. Play back the recording tape and determine the edit-out point (the end of the segment to be replaced) using the JOG/SHUTTLE controls.
   - Releasing the JOG/SHUTTLE controls engages the Still mode.
3. Press C. RESET. (0:00:00)
4. Determine the edit-in point (the beginning of the segment to be replaced) using the JOG/SHUTTLE controls.
5. Press INSERT. (Insert-Pause mode)
   - For simultaneous replacement of the normal audio soundtrack, press AUDIO DUB as well.
   - The TV screen changes from the still picture to the input signal you are going to record.
6. Play back the segment of the source tape to be inserted.
7. Press PLAY.
   - Insert editing will start. At counter 0:00:00, insert editing will stop automatically while the tape continues running in the Play mode.
   - If you wish to stop insert editing before the specified edit-out point, press C. RESET.



Editing From A Camcorder

Tape-to-tape editing is also possible using a JVC camcorder (equipped with playback facility) as the player and your recorder as the recording deck. In this case, the recorder's REMOTE PAUSE terminal can be used to accept Master Edit Control commands from the camcorder.

PREPARATION

1. Connect the camcorder's AV OUT connector to the recorder's front panel INPUT connectors.
2. Connect the AV output cable's mini-plug to the REMOTE PAUSE terminal of the recorder.
3. Select the FRONT AV mode (refer to the table below).
4. Select the TAPE DUB mode with the remote's PICTURE button. ☞ p.68
   - If the comcorder is equipped with the Master Edit Control system, you can control the recorder using the camcorder's controls. See the camcorder's instruction manual for operating procedures.
   - With this connection, you can also use the camcorder as a video camera for direct recording onto the recorder's tape. Put the recorder in Record-Pause and use the camcorder's start/stop trigger to start and pause recording. (For direct recording with a separate video camera, a camera adapter is necessary.)

How To Select The External Input Mode

	Connector	Procedure	Display Panel
REAR	AUDIO/VIDEO	Press TV PROGRAM or remote's "0" key.	AUX INPUT
	AUDIO/VIDEO and AUDIO IN L, R*	Press SIMUL/AUX 2 while in the AUX INPUT mode.	AUX INPUT 2
FRONT	V (Video) and A (Audio) L,R	Press TV PROGRAM or remote's "0" key.	FRONT AV

* Video signal via AUDIO/VIDEO; audio signal via AUDIO IN L, R.

NOTES:

- Connections made to the front panel Video and Audio inputs automatically override the rear panel input connection. If you wish to edit with another machine connected to the rear input connector, make sure that there is nothing connected to the front connectors.
- Use the L connector for monaural connection.

For Reception

Changing Preset Channels

TO CHECK STORED REAL CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROG. (VTR) to select the channel position of the stored real channel whose number you want to know. (e.g. PR. 10)
2. Press CH.

STORED 10

↓

REAL Ch26

- This indicates that channel position 10 stores real channel 26.

3. To check other channel positions, press TV PROG. (VTR).
   - Either "STORED xx" or "SKIPPED xx" will appear, followed by "REAL Ch xx" or "REAL CC xx".
4. The Channel Set mode will be cancelled in about 60 seconds unless you call up another channel position. Do not press the CH button; this alternates between Ch and CC bands.

TO DELETE STORED CHANNELS

Use the remote control. First turn on the recorder.

1. Press TV PROG. (VTR) to select the channel position you want to skip. (e.g. PR. 10)
2. Press CH.

STORED 10

3. Press SKIP.

SKIPPED 10

↓

REAL Ch26

- This indicates that real channel 26 has been deleted from channel position 10.

TO STORE NEW CHANNELS

Use the remote control. First turn on the recorder.

1. Press CH.

REAL Ch26

2. Press CH again and keep it pressed until the real channel number starts blinking.
3. Press CH to change the band between Ch and CC, if necessary.
4. Press numeric keys to input the number of the real channel you want to store. (e.g. Ch 26.)

REAL Ch26

↓

SKIPPED 10

5. Press numeric keys to input the number of a vacant channel position (e.g. 20), and hold the key for the 2nd entry until the display changes to "STORED 20".

STORED 20

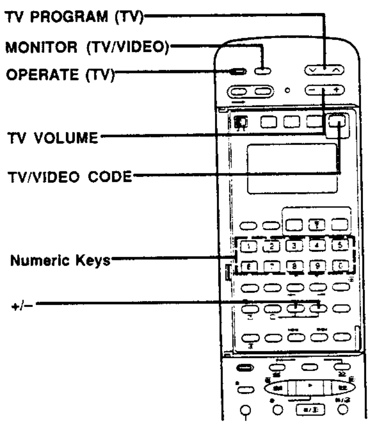
↓

REAL Ch26

- The Channel Set mode will be cancelled automatically after about 60 seconds.

Using The Remote Control For TV Operation

The provided remote control can operate the basic functions of your television. In addition to JVC televisions, other manufacturers' televisions listed here can also be controlled by setting the remote control to the corresponding TV code. The remote control's default code is "1", which enables control of most JVC televisions without re-setting. If your JVC television is equipped with 10+ and 20+ buttons on its remote control, you have to set the TV code to "2".



CODE	TV BRAND NAME
1	JVC
2	JVC
3	BRANDT NORDMENDE SABA TELEAVIA TELEFUNKEN THOMSON
4	FERGUSON
5	PHILIPS
6	BLAUPUNKT GRUNDIG
7	SONY
8	PANASONIC
9	PANASONIC
0	GRAETZ ITT LUXOR SALORA SELECO

IMPORTANT

Although the provided remote control unit is compatible with JVC televisions, as well as many TV models manufactured by others, it is possible that the provided remote control will not work with your TV, or in some instances, will have limited function capability.

Setting The TV Code

1. Press TV/VIDEO CODE for longer than 2 seconds.
   - The LCD will show the current code (initially "Code 1").
2. Press a numeric key corresponding to the code number for your TV's brand.
   - The LCD will return to the clock mode after 2 seconds.

A CODE SA
2 1:05
CodE 1

NOTES:

- TV code setting is not possible unless the clock has been set.
- Whenever you replace batteries in the remote control or initialise the LCD memory (☞p.51), it is necessary to re-set the TV code, if your television is not a Code 1 JVC TV.

To Control Your Television With Buttons Exclusively For TV

- Press OPERATE (TV) to turn the TV power on.
- Press MONITOR (TV/VIDEO) to switch the TV between TV and VIDEO (or AV) mode.
- Press TV PROGRAM (TV) to select the TV's channel.
- Press TV VOLUME to adjust the TV's sound volume.

NOTES:

- The TV PROGRAM (TV) button does not function with televisions using Code 3.
- The MONITOR (TV/VIDEO) button does not function with televisions using Code 4.
- With some televisions, the OPERATE (TV) button functions only to turn the TV power off, and the MONITOR (TV/VIDEO) button functions only to switch the TV to the VIDEO (AV) mode.

To Control Your Television With Additional Buttons

The numeric keys can also be used to select the TV's channel by setting the remote control to the TV mode.

1. Press TV/VIDEO CODE.
   - "TV" will appear on the LCD.
2. Use the numeric keys and +/– to select the TV's channel while "TV" is on the LCD.
   - With televisions using Code 1, 4, 5, 7, 8 or 9, both the +/– buttons correspond to the 1-digit/2-digit entry switching button (often labelled -/--) of your TV's remote control.
   - With televisions using Code 2, 6, or 0, the – button corresponds to the 10+ button, and the + button, to the 20 + button of your TV's remote control.

A CODE SA
2 1:05
DATE 06·08 TV '92

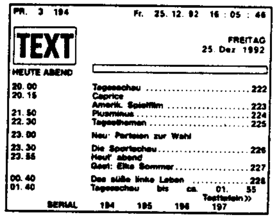
NOTE:

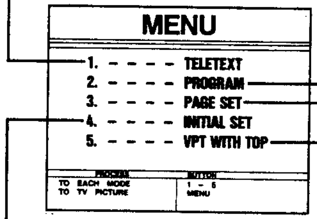
The way these buttons are used is determined by your TV. Use these buttons as instructed for your TV's remote control.

Using The Optional Teletext Adapter

Teletext services have established themselves as one of the most flexible sources of information and broadcast schedules available to TV and video users. Your video recorder is ready to take full advantage of these services. By connecting an optional teletext adapter (☞ Specifications), you'll not only be able to view the vast number of teletext pages now available, you'll be able to transfer broadcast schedule data directly to your recorder's timer for instant, automatic timer programming. You'll also be able to make full use of your remote control's capabilities, with all the dual or triple function controls working as intended. Here are just a few examples of features available to you when you connect an optional teletext adapter.

TELETEXT
- View broadcast teletext pages.
- Several page access modes are available for quick, convenient location of pages you want to see.
- You can program the video recorder's timer directly using TV schedule pages.

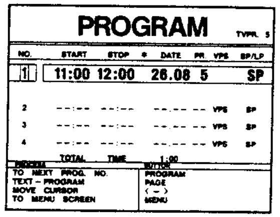




INITIAL SET
LANGUAGE
- Select one of four languages (English, German, Italian, or Swedish) for on-screen messages.

CLOCK ADJUST
- Set the recorder's clock manually using the numeric keys.
- Set the recorder's clock automatically by reading teletext time information.

PROGRAM
- Check timer recording data on the colour on-screen display.
- Program the timer manually with the remote's numeric keys.



PAGE SET
- You can preset favourite or often-referred-to pages for immediate access.
- Up to four pages can be stored on each of the numeric keys, for a total of 40 pages.

VPT WITH TOP
- TOP automatic teletext timer programming.
- Convenient colour-coded page access.
"5.– – – – VPT WITH TOP" only appears when the video recorder's tuner is tuned to a station transmitting TOP broadcasts. (Applicable only in certain areas.)

ATTENTION

Some buttons on the remote control unit are labelled with pictograms indicating the functions that can be used when the VPT adapter is connected. When reading the VPT adapter's instruction manual, keep in mind the correspondence between these pictograms and the labels referred to in the instruction manual:

⊕ : LARGE/NORMAL
⍰ : REVEAL
◎ : TIMED PAGE
⊕ : RESET
⊕ : HOLD
⊠ : MIX
→ : ROTATE

Display Panel Messages

Messages not appearing elsewhere in this manual are listed here. More common messages are all clearly illustrated in the relevant sections.

Displayed Message	When It Appears, What It Means
During Clock Set	
31/12 10:30	"31st December, 10:30" is successfully transferred.
During Program Set	
VPS ON	"VPS" status is changed from OFF to ON. Displayed for 2 seconds.
VPS OFF	"VPS" status is changed from ON to OFF. Displayed for 2 seconds.
During Channel Set	
REAL CC 02	"Real Channel 02 in CC band" is stored.
REAL CC :15	"Real Channel 15 in CC band" is received, but not stored.
FINE -CC 15	"Fine tuning" is engaged for "Real Channel 15 in CC band".
DECODE OFF	"Decoding" status has changed to "OFF".
During Normal Operation	
SPEED SP	Tape speed is changed from LP to SP. Displayed for 5 seconds.
SPEED LP	Tape speed is changed from SP to LP. Displayed for 5 seconds.
AUDIO DUB	Audio dubbing is in progress.
A DUB P	Audio dubbing is paused.
INSERT	Insert editing is in progress.
INSERT P	Insert editing is paused.
AV DUB	AV dubbing (combined use of insert editing and audio dubbing) is in progress.
AV DUB P	AV dubbing is paused.
AUX INPUT	External input is selected.
AUX INPUT 2	External input 2 is selected by pressing the SIMUL/AUX 2 button from AUX INPUT.
FRONT AV	External input via front panel V/A (L, R) is selected.
SIMULCAST	Simulcast recording is selected by pressing the SIMUL/AUX 2 button. Displayed for 5 seconds.
REC SP AUX	Recording "External Input" via AUDIO/VIDEO in the SP mode.
REC LP AUX	Recording "External Input" via AUDIO/VIDEO in the LP mode.
REC SP AU2	Recording "External Input" via AUDIO IN in the SP mode.
REC LP AU2	Recording "External Input" via AUDIO IN in the LP mode.
PAUSE AUX	Recording is paused during REC SP (or LP) AUX.
PAUSE AU2	Recording is paused during REC SP (or LP) AU2.
VPS REC	VPS recording is in progress.
SKIP	Skip Search is started. Displayed for 5 seconds.
BLANK	Blank Search is started. Changes to REMAIN after 5 seconds.
INDEX +9	Searching for the 9th index code in the forward direction.
INDEX –4	Searching for the 4th index code in the reverse direction.
INDEX MARK	Index code is being marked.
REPEAT	Blinking during rewind for Repeat Playback.

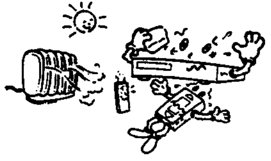
Displayed Message	When It Appears, What It Means
During Next Function Memory	
REW – OFF ⤵ OFF	Will rewind to the beginning and then shut off automatically.
REW – PLAY ⤵ PLAY	Will rewind to the beginning and then start playback automatically.
REW – TIMER ⤵ TIMER	Will rewind to the beginning and then enter the timer mode automatically.
REW – EJECT ⤵ EJECT	Will rewind to the beginning and then eject the tape automatically.
Clock and Counter Displays	
4:30:15	Tape counter reading of "4 hours, 30 minutes, 15 seconds".
31/12 10:30	It is 31st December, 10:30. (Standard date/time display when recorder power is turned off)
31/12 ⚷ 10:30	Same as above with Child Lock ON.
REC LP 1:30	Recording in the LP mode with the Off Timer set to shut off in 1 hour 30 minutes.
TIMER ⚷ 10:30	It is 10:30 and the Timer Standby mode is engaged with Child Lock ON.
VPS 12:59	It is 12:59 and the VPS standby mode is engaged.
VPS ⚷ 12:59	Same as above with Child Lock ON.
SET CLOCK ⚷	The clock is not set. Please set it. The recorder is locked with Child Lock ON..
Other Messages	
GOOD MORNING ⤵ GOOD AFTERNOON ⤵ GOOD EVENING ⤵	Automatic greetings when the recorder is turned on.
GOOD-BYE GOOD NIGHT	Automatic greetings when the recorder is turned off.

NOTE:

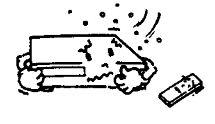
This list represents the various types of messages your recorder is capable of generating. Actual messages displayed by your recorder (esp. if date, time, channel, tape counter reading, or other variables are involved) will differ slightly from those listed here.

Precautions

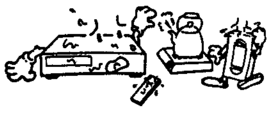
Please follow these safety precautions. Not doing so may result in damage to the recorder, remote control, or video cassette.



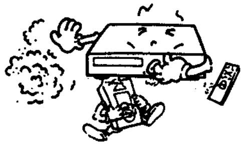
Avoid extreme heat and direct sunlight



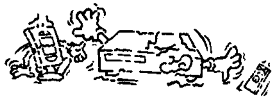
Avoid extreme cold



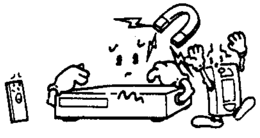
Avoid extreme humidity



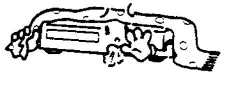
Avoid dust



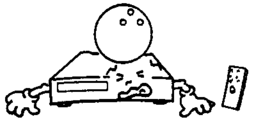
Avoid places subject to vibrations



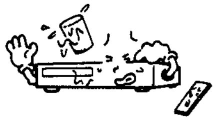
Avoid strong magnetic fields



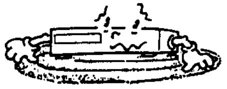
Do not block the recorder's ventilation openings



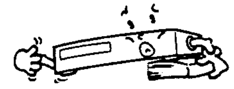
Do not place anything heavy on the recorder or remote control



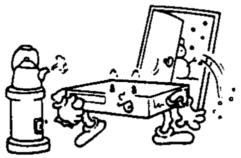
Do not place anything which might spill on top of the recorder or remote control



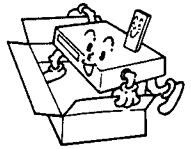
Do not place the recorder on cushions, pillows, or thick carpeting



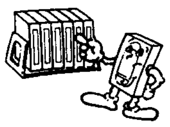
Use the recorder in a stable, horizontal position only



Beware of moisture condensation
Moisture in the air will condense on the recorder when you move it from a cold place to a warm place, or under extremely humid conditions — just as water droplets form on the surface of a glass filled with cold liquid. Moisture condensation on the head drum will cause damage to the tape. In conditions where condensation may occur, keep the recorder's power turned on for a few hours to let the moisture dry.



When transporting
- Be sure to remove cassette from recorder before packing
- Avoid violent shocks to the recorder during packing and transport



Place cassettes in cassette cases and store vertically

In Case Of Difficulties

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
No power is applied to the recorder.	■ Is the power cord disconnected? — Connect it.
Clock is functioning properly, but the recorder cannot be powered.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Tape does not run during recording.	■ Is "PAUSE" displayed on the display panel? — Press the PLAY button to extinguish the display.
Tape stops during rewind or fast-forward.	■ Is the C. MEMORY button pressed? — Press again to make "M" disappear from the display panel.
Tape will not rewind or fast-forward.	■ Is the tape already fully rewound or fast-forwarded? — Check the cassette.

RECORDING PROBLEMS

Symptoms	Check points
Recording cannot be started.	■ Is a cassette loaded? ■ Is the safety tab on the cassette removed? — Reseal the slot with adhesive tape.
TV broadcasts cannot be recorded.	■ Has "external input" been selected? — Set to the desired channel.
Tape-to-tape editing is not possible.	■ Is the camcorder or another video recorder correctly connected? ■ Are all necessary power switches turned ON? ■ Has "external input" been selected? — Set to the correct input mode. (☞ p.85)
Camera recording is not possible.	■ Is the camcorder correctly connected? ■ Has "external input" been selected? — Set to the correct input mode. (☞ p.85)
Timer recording is not possible.	■ Have you set the clock correctly and programmed the timer correctly? — Check once again. ■ Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

Symptoms	Check points
Playback picture does not appear while the tape is running.	■ If you are using RF OUT connection, is the TV receiver's channel selector set to the correct video channel? — Set it to the RF converter channel (UHF 36). (☞p.55) ■ If you are using AV connection, is the TV receiver set to the AV mode? — Set it to the AV mode.
Playback is repeated.	■ Is the REPEAT switch set to either FULL or INDEX? — Set it to OFF.
Noise appears during visual search.	■ This is normal.
Noise appears during normal playback.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.66)
Noise appears during slow motion playback.	— Try manual tracking. (☞p.66)
Noise appears during still playback.	— Press Pause/Still a few times to remove the noise bars from the screen.
Playback picture is blurred or interrupted while TV broadcasts are clear.	■ Video heads may be dirty. — Head cleaning is necessary. Consult your JVC dealer. (☞p.93)

Hi-Fi AUDIO PROBLEMS

Symptoms	Check points
TV sound cannot be recorded on Hi-Fi audio track.	■ Has the SIMUL/AUX 2 button been pressed? — Check by pressing OSD. If "SIMUL" appears on the screen, cancel it by pressing SIMUL/AUX 2 button.
Breaks are noticeable in Hi-Fi audio reproduction.	■ Is the automatic tracking mode engaged? — Try manual tracking. (☞p.66)

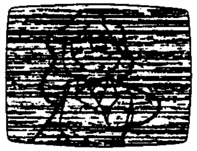
OTHERS

Symptoms	Check points
Whistling or howling is heard from TV during camera recording.	■ Move camcorder or camera's microphone away from TV or reduce TV sound volume.
Remote control's LCD clock time cannot be transferred to the recorder.	■ Is "TIMER" displayed on the display panel? — Press the TIMER button to extinguish the display.
Some channels are skipped over when scanning channels.	■ Those channels are preset to be skipped over. If you need them, restore them. (☞p.86)
Channel cannot be switched.	■ Is recording in progress? — Press the PAUSE/STILL button, change the channel, and press the PLAY button.
Remote control does not function.	■ Are the batteries discharged? — Replace with new ones. ■ Is the A/B CODE indicator showing the proper code for the recorder being operated? — Set the A/B CODE switch to the correct setting.
The remote control's time display changed to "0:00" and is blinking.	— The remote control's batteries are exhausted. Replace all the batteries and set the clock again.

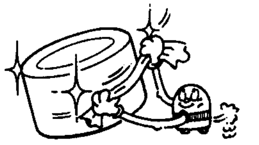
ATTENTION:
This recorder contains microcomputers. External electronic noise or interference could cause malfunctioning. In such cases, switch the power off and unplug the power cord. Then plug it in again and switch on. Take out the cassette. After checking the cassette, operate the unit as usual.

Special Note On Head Cleaning

Accumulation of dirt and other particles on the video heads may cause the playback picture to become blurred or interrupted.
Although this model is equipped with a built-in head cleaner which automatically cleans the heads, reducing the likelihood of dirty heads, if such troubles are encountered please consult the nearest JVC dealer.



Auto Head Cleaner



A built-in head cleaner automatically cleans the video heads and head drum whenever a tape is loaded or unloaded to reduce head clogging.

SECTION 1
DISASSEMBLY AND MECHANISM ADJUSTMENT

1.1 DISASSEMBLY

1.1.1 Top cover

1. Take out 4 screws Ⓐ and a screw Ⓑ.
2. To remove the top cover, slide in direction of arrow and lift away.

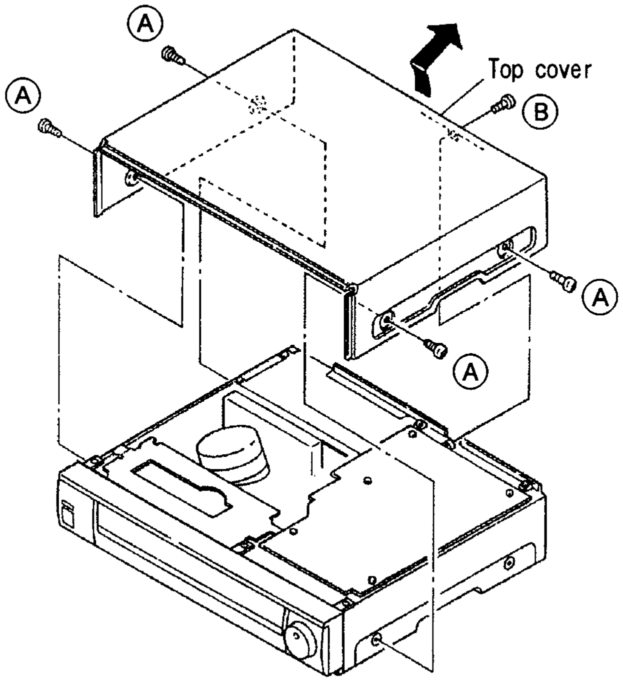


Fig. 1-1-1 Top cover

1.1.2 Front panel assembly

1. Remove the top cover, then take out 3 screws Ⓔ.
2. Remove the plate.
3. Carefully disengage 3 tabs ⓐ of the front panel assembly from the upper side of the chassis.
4. Pull the front panel assembly forward you to disengage 3 tabs ⓑ of the front panel assembly from the bottom of the chassis.
5. Disconnect connectors CN12 and CN4, then remove the front panel assembly.

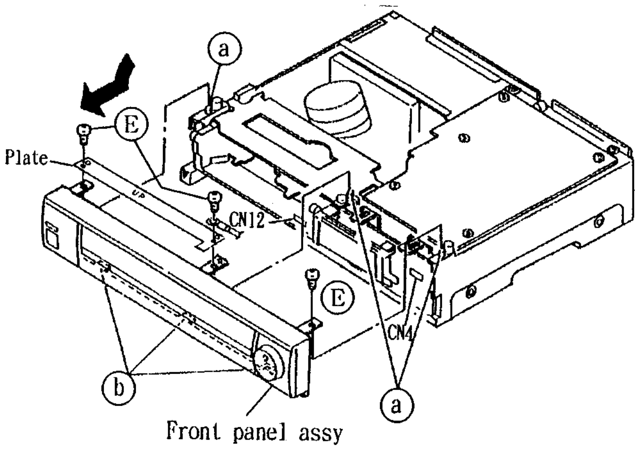


Fig. 1-1-2 Front panel assembly

1.1.3 Bottom cover

1. Remove the top cover.
2. Take out 5 screws Ⓒ and 4 feet.
3. Disengage 4 claws ⓐ from the bottom of the chassis.
4. Disengage the bottom cover from the bottom of the the chassis.

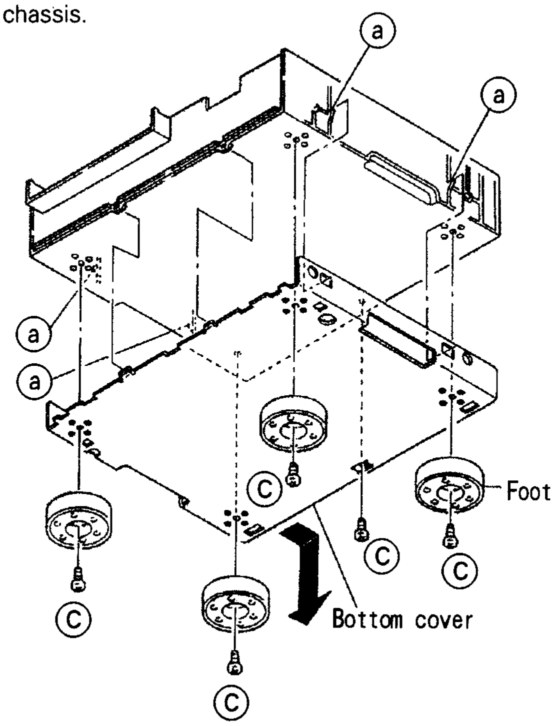


Fig. 1-1-3 Bottom cover

1.1.4 MAIN board assembly

1. Remove the top cover.
2. Take out 3 screws Ⓓ, 2 screws Ⓔ and 1 screw Ⓑ.
3. Remove the MAIN board assembly in the direction of arrow.

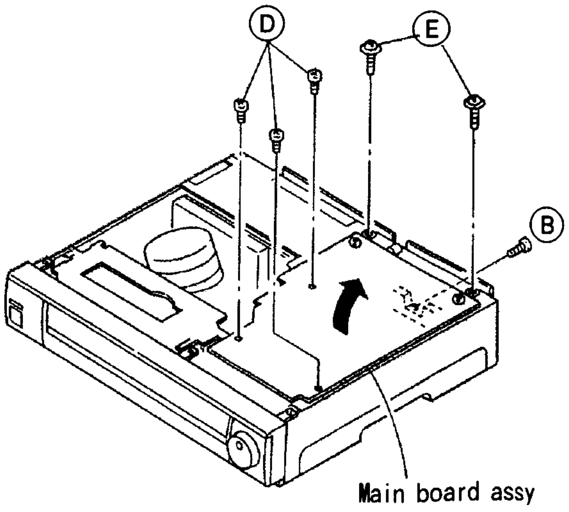
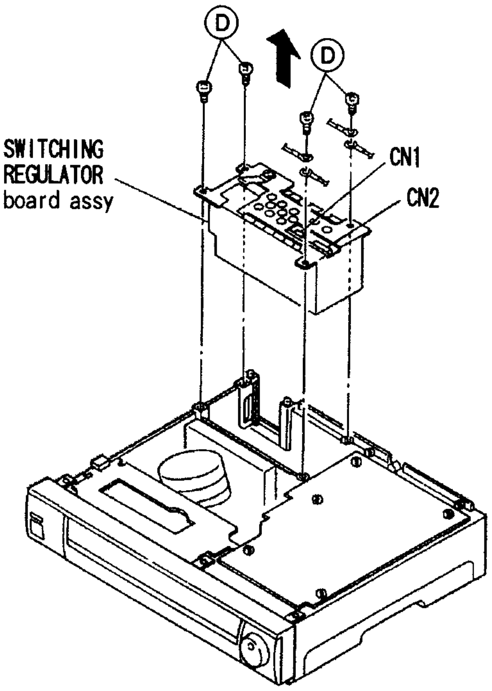


Fig. 1-1-4 MAIN board assembly

1.1.5 SWITCHING REGULATOR board assembly

1. Remove the top cover.
2. Take out 4 screws Ⓓ.
3. Disconnect connectors CN1 and CN2.
4. Remove the SWITCHING REGULATOR assembly in direction of arrow.

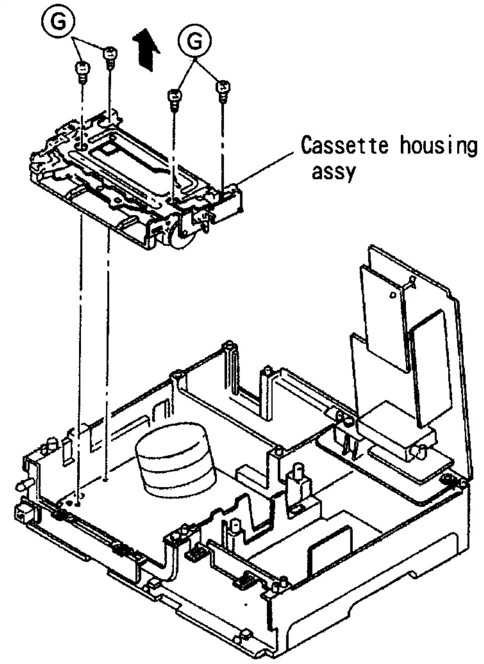


Ⓓ
Ⓓ
SWITCHING REGULATOR board assy
CN1
CN2

Fig. 1-1-5 SWITCHING REGULATOR board assembly

1.1.6 Cassette housing assembly

1. Remove the top cover, front panel, MAIN board assembly.
2. Take out 4 screws Ⓖ.
3. Remove the cassette housing assembly in direction of arrow.



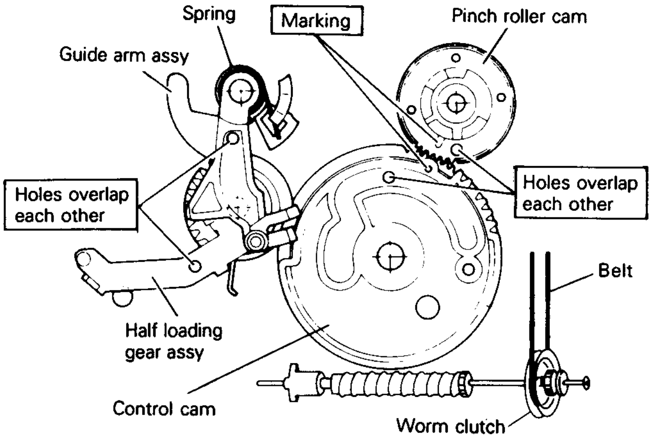
Ⓖ
Ⓖ
Cassette housing assy

Fig. 1-1-6 Cassette housing assembly

1.1.7 Cassette housing installation

Note: ***Observe the mechanical phase and position (see figure) when installing the cassette housing assembly. If these are incorrect, the system will not operate properly even when tape is inserted.***

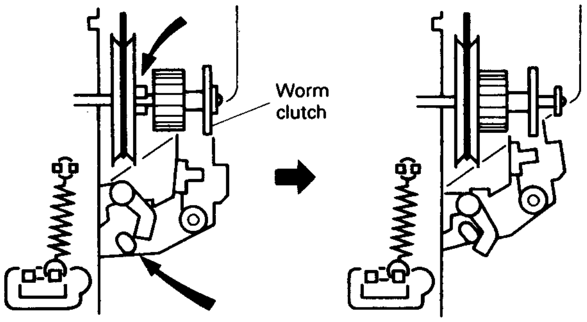
1. Check that the marks of the control cam and pinch roller cam are aligned. If necessary, turn the worm clutch by hand to adjust the position.



Spring
Marking
Pinch roller cam
Guide arm assy
Holes overlap each other
Holes overlap each other
Belt
Half loading gear assy
Control cam
Worm clutch

Fig. 1-1-7 Control cam and pinch roller cam position

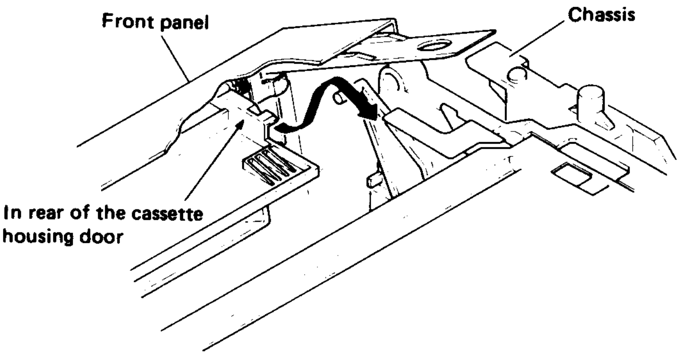
2. Confirm that the clutch of the worm clutch assembly is locked. If necessary, engage the locked.



Worm clutch

Fig. 1-1-8(a) Not locked **Fig. 1-1-8(b)** Lock engaged

3. Install the front panel as shown in Fig. 1-1-9 and reengage the tabs. Supply power and use a spare cassette to check for normal loading and eject operations.



Front panel
Chassis
In rear of the cassette housing door

Fig. 1-1-9 Cassette housing door

1.1.8 SWITCH/DISPLAY board assembly

1. Remove the top cover and front panel.
2. Disengage 2 claws ⓐ from the chassis.
3. Disengage 2 claws ⓑ, then remove the SWITCH/DISPLAY board assembly in direction of arrow.

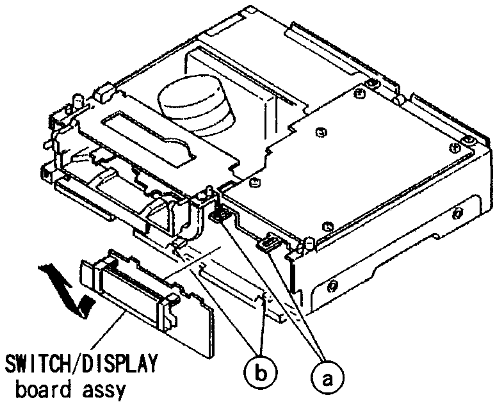


Fig. 1-1-10 SWITCH/DISPLAY board assembly

1.1.9 PRE/REC board assembly

1. Remove the top cover.
2. Disconnect connectors CN1, CN201 and CN202 from the PRE/REC board assembly.
3. Take out 3 screws Ⓗ.
4. Remove the shield cover, and Disconnect CN203.
5. Remove the PRE/REC board assembly in direction of arrow.

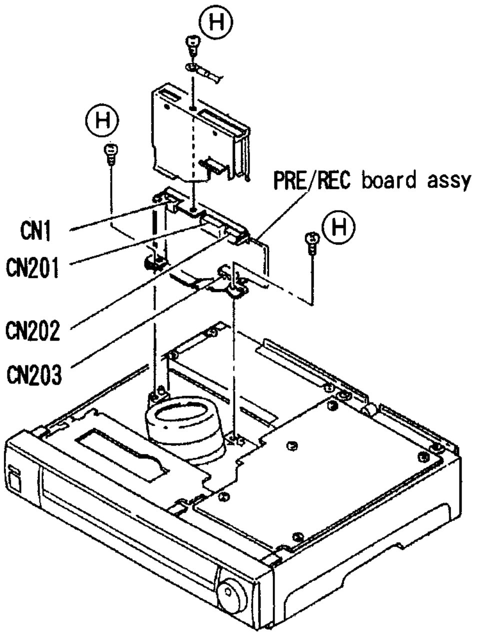


Fig. 1-1-11 PRE/REC board assembly

1.1.10 Main deck assembly

1. Remove the top cover, front panel, MAIN board assembly, PRE/REC board assembly and cassette housing assembly.
2. Take out 3 screws Ⓙ and disengage 2 claws ⓐ from the chassis.
3. Remove the main deck assembly in direction of arrow.

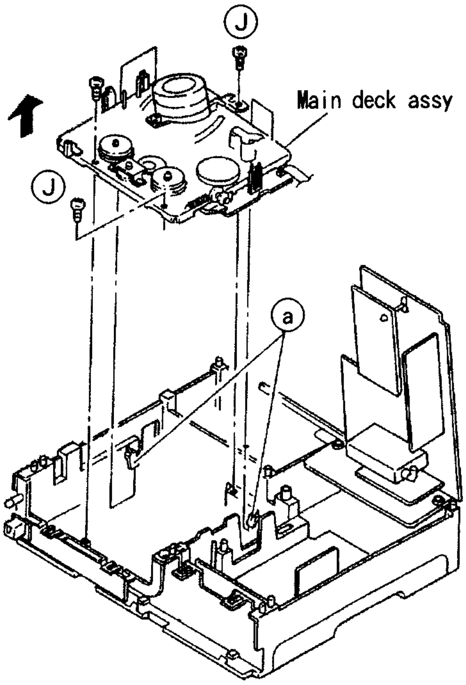


Fig. 1-1-12 Main deck assembly

1.2 MECHANISM ADJUSTMENTS

1.2.1 Precautions

1. Disconnect mainframe from AC power before soldering.
2. Avoid imparting stress to wires when disengaging connectors.
3. Determine and correct the cause of difficulty before proceeding to adjustments. Do not disturb settings unnecessarily.
4. Use care not to damage tabs, claws, etc. during repairs.
5. Install the cassette housing assembly only when the mechanism is in the Eject or Stop mode position. In the Eject mode, the internal holder of the housing is fully raised. This is fully lowered in the Stop mode.
6. When installing the front panel assembly, be sure to engage the housing door with the door lever of the cassette housing assembly. If this step is omitted, the door will not open at Eject and the cassette cannot be removed.

1.2.2 Check without cassette housing

Mechanism operations can be observed easily by removing the cassette housing assembly. Note the following.

1. Disable the photo transistor sensor (END SENSOR) on the main-deck by applying an opaque cover.
2. Connect pins 2 and 3 of MAIN board connector CN601.
3. Select the desired modes with the operation buttons. However, notice that without tape, setting for the reverse direction modes produces the Stop mode after a few seconds due to absence of the reel sensor output.

1.2.3 Manually removing cassette tape

In event of electrical system failure that prevents the tape from being unloaded, the tape can be removed manually by the following procedure. Refer to Figs. 1-3-1, 1-3-2 and 1-3-3.

1. Disconnect power cord from AC outlet.
2. Turn the loading motor by hand so that the control cam rotates clockwise. This retracts the pole base assembly to the unloading position.
3. Continue turning to where the guide arm and half loading gear assemblies shift to beneath the cassette.
4. Turn the clutch assembly at the rear of the deck to absorb slack tape within the cassette.
5. Again turn the loading motor in the same direction to raise the cassette and remove it.

1.2.4 Test equipment

The following special tools and fixtures are required for mechanism adjustment.

1. Alignment tapes : MH-2 (SP) and MH-2L (LP)
   Stairstep signal is employed for interchangeability checks and adjustments.
2. Torque gauge : PUJ48075-2
   Measures tape take-up torque.
3. Back tension cassette gauge : PUJ48076-2
   Measures tape tension at the supply side.
4. A/C head positioning tool : PUJ47351-2
   Shifts the head base for adjusting the control head position.
5. Roller driver : PTU94002
   Turns the guide roller for adjusting FM linearity.
6. Presetting unit : PTU94008
   Use for LP auto tracking preset adjustment.

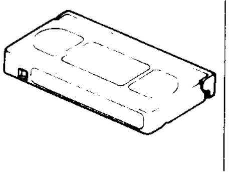
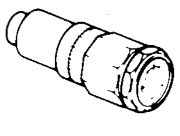
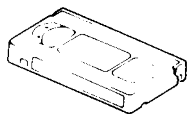
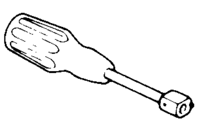
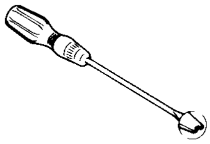
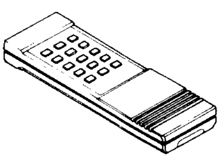
1 Alignment tape	2 Torque gauge	3 Back tension cassette gauge	4 A/C head positioning tool	5 Roller driver	6 Presetting unit
					

Fig. 1-2-1 Test equipment

1.3 MAIN MECHANISM PARTS

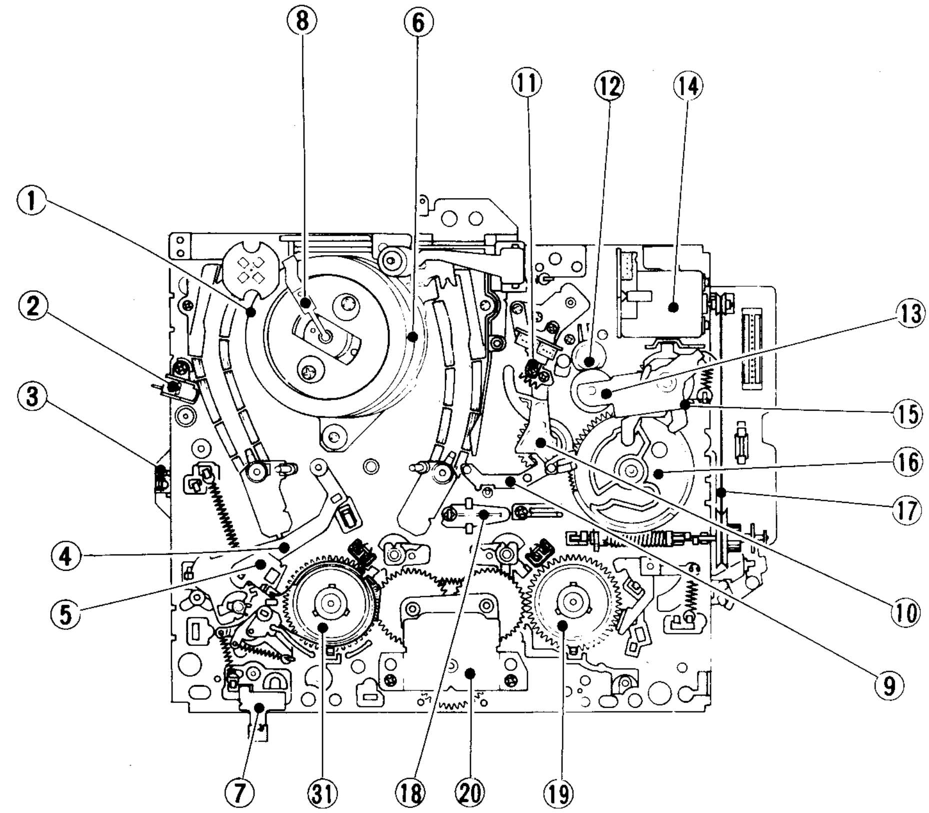

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Fig. 1-3-1 Top view of main-deck

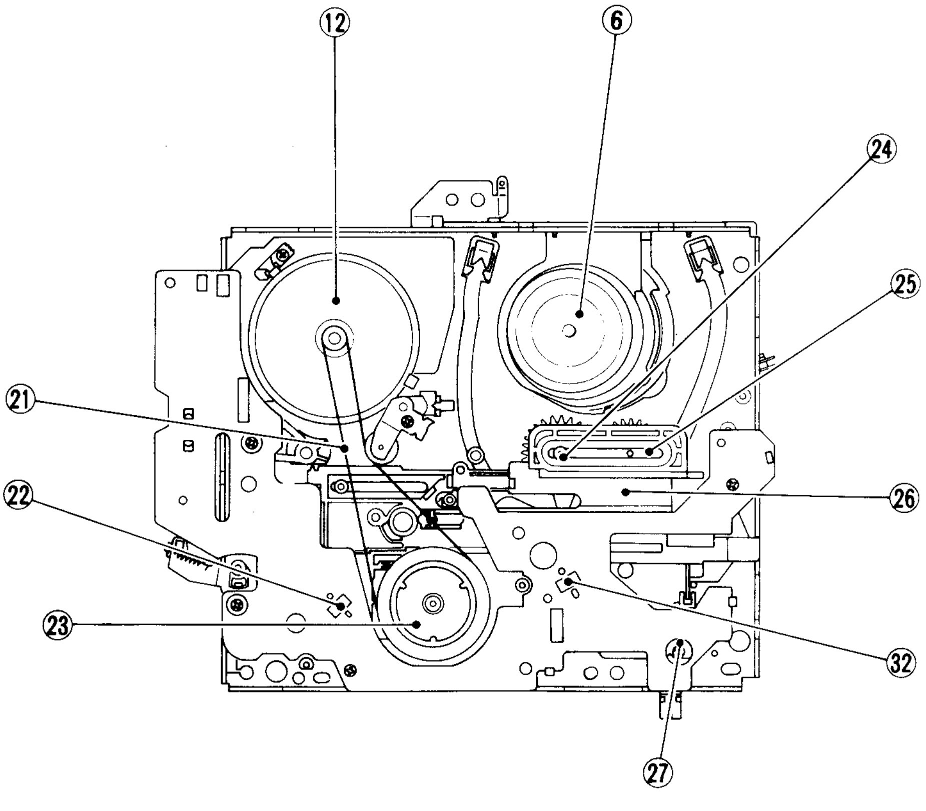
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Fig. 1-3-2 Bottom view of main-deck

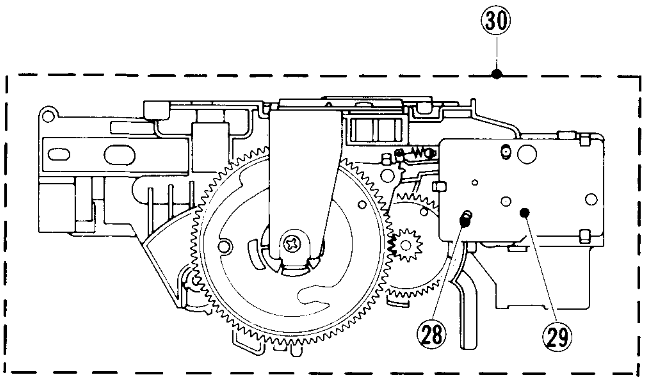


Fig. 1-3-3 Side view of cassette housing

A. Cleaning

Periodic cleaning of the tape transport system is desirable, but ordinarily not feasible in practice. Therefore, perform cleaning when a set is brought in for repairs or maintenance. Contamination of the video heads, tape guides and brushes can detract from playback picture quality and in extreme cases, even damage the tape. For cleaning, use a fine-mesh cotton cloth (about the texture of a white dress-shirt) moistened in alcohol.

- To clean the video heads, press the moistened cloth gently against the upper drum with fingertip and turn the drum by hand.
- Do not use a vertical stroke, as this may damage the heads.

B. Lubrication

Oil and grease do not normally require periodic replenshing. Apply only when replacing lubricated parts (also clean and replace lubrication of mating parts if soiled).

For parts and points to apply oil and grease, refer to the exploded views of the mechanism assembly.

Before oiling, clean with alcohol.
Apply one or two drops of oil. Avoid excess oil.

1. Table 1-3-1 indicattes the oil and grease used in this set. Use these or recommended locally available equivalent

Category	Part No.
Oil	COSMO-HV56
Grease	KANTO-G-31KAV

Table 1-3-1

2. Grease is not required for a replacement cassette housing assembly, as this has been applied at the factory.

Note: ***Stir grease that has been stored for an extended period.***

C. Main mechanical parts

See Fig.s 1-3-1, 1-3-2 and 1-3-3.

No.	Symbol	Parts Name	See Section
1	M32A	Upper drum assy	1.5.1
2	M44	Full erase head	
3	51Q1	End sensor	
4	M41	Tension arm assy	1.5.4
5	M42	Tension band assy	1.5.4
6	M32C	Lower drum motor assy	1.5.2
7	M461	REC safety switch	
8	M32D	Brush assy	
9	M449	Half loading gear assy	1.5.5
10	M447	Guide arm assy	1.5.5
11	M48	A/C head	1.5.3
12	M422	Capstan motor	
13	M442	Pinch roller arm assy	
14	M434	Loading (Mode) motor assy	
15	M446	Pinch roller cam	1.5.5
16	M438	Control cam	1.5.5
17	M437	Loading belt	
18	M460	LED holder (D1)	
19	M430	Reel disk (take-up)	
20	M424	Idler gear unit	
21	M429	Timing belt	
22	51PS1	Take up reel sensor (PHS1)	
23	M426	Clutch unit	1.5.6
24	M433	Take up loading arm assy	1.5.7
25	M432	Supply loading arm assy	1.5.7
26	M439	Plate assy	1.5.7
27	M462	Slide switch (S3)	
28	56PHS3	Cassette sensor (PHS3)	
29	56Q2	Start sensor (Q2)	
30	M36	Cassette housing assy	
31	M470	Reel disk (supply)	
32	51PS2	Supply reel sensor (PHS2)	

- Symbol interpretation example

M32A: M — Exploded view symbol; 32A — Ref. No.

56 Q2: 56 — Board No.; Q2 — Ref. No.

Table 1-3-2

1.4 INSPECTION AND MAINTENANCE

This product employs rotary and moving parts which wear out in the course of usage. Periodic inspection, cleaning, lubrication and maintenance are therefore important for ensuring maximum performance. Worn parts must also be replaced when required.

1.4.1 Suggested servicing schedule for main components

The following table indicates the suggested period for such service measures as cleaning, lubrication and replacement. In practice, the indicated periods will vary widely according to environmental and usage conditions. However, the indicated components should be inspected when a set is brought for service and the maintenance work performed if necessary.

Also note that rubber parts may deform in time, even if the set is not used.

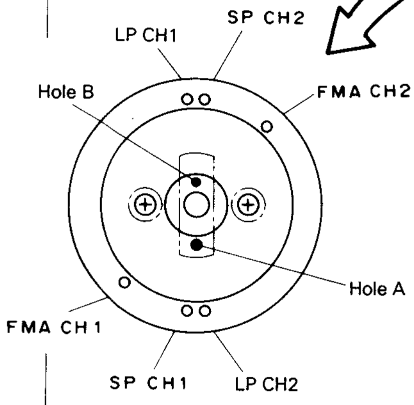
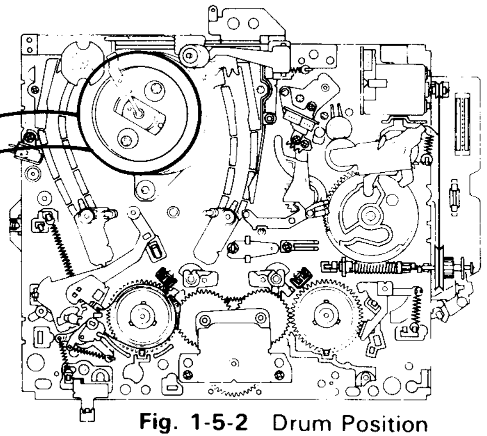
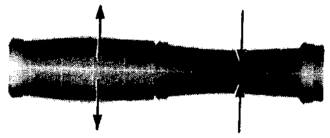
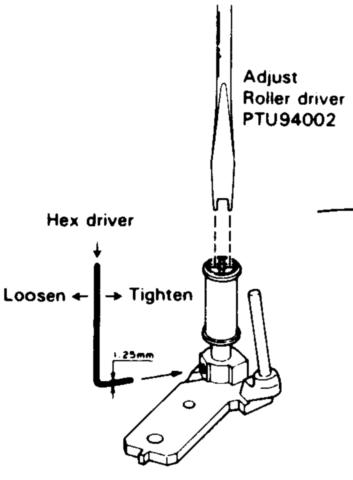
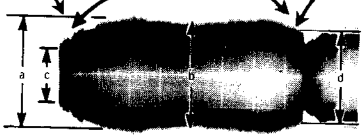
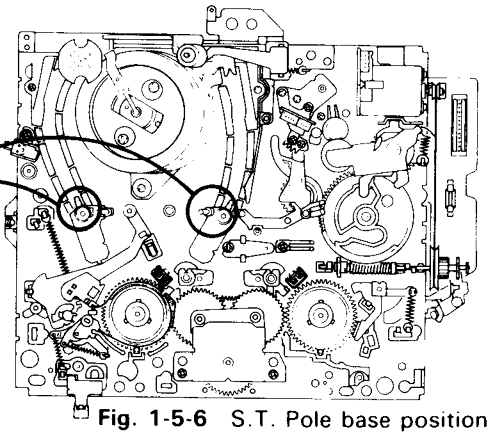
System	No.	Parts Name	Symbol No.	Periodic servicing schedule (operation hours)							
				250	500	750	1000	1250	1500	1750	2000
Tape Transport	1	Upper drum	M32A	★	★	☆	○	○	○	○	○
	11	A/C head	M48	★	★	★	○	○	○	○	○
	13	Pinch roller	M442	★	★	★	○	○	○	○	○
	2	Full erase head	M44	★	★	★	○	○	○	○	○
	4	Tension arm	M41								
	6	Lower drum	M32C				○	○	○	○	○
	12	Capstan (shaft)	M422	★	★	★	★	★	★	★	★
	9	Half loading gear	M449								
	10	Guide arm	M447								
Drive	12	Capstan motor	M422				○	○	○	○	○
	17	Loading Belt	M437				○	○	○	○	○
	21	Timing Belt	M429				○	○	○	○	○
	19	Take-up reel disk	M430				○	○	○	○	○
	31	Supply reel disk	M470				○	○	○	○	○
	23	Clutch assy	M426								○
	14	Loading motor	M434				○	○	○	○	○
		Worm clutch assy	M436								△
		Plate assy	M439								△
Others	5	Tension band	M42				○				○
	8	Brush	M32D				○				○

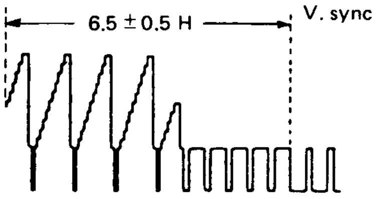
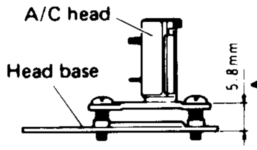
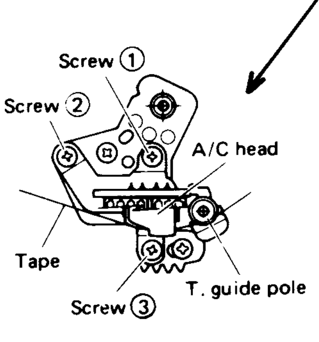
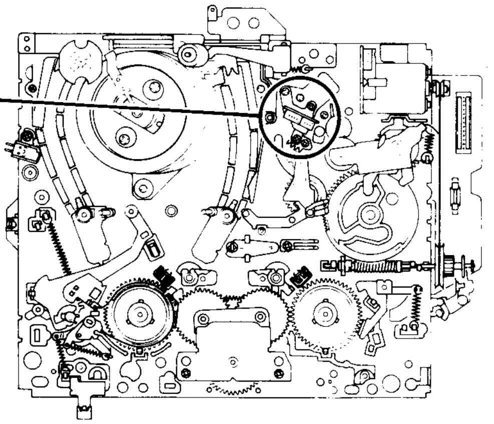
★ : Cleaning
☆ : Cleaning (or Replacement if necessary)
△ : Lubrication
No: Refer to Main mechanical parts

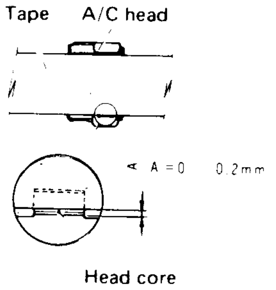
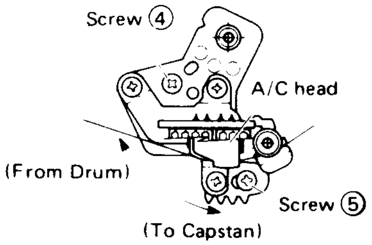
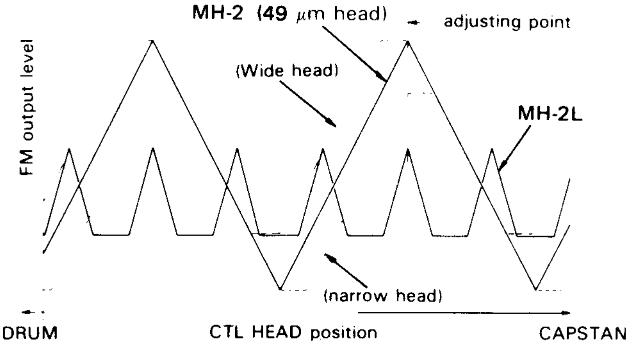
▲ : Lubrication (or Replacement if necessary)
● : Replacement
○ : Inspection or Replacement if necessary

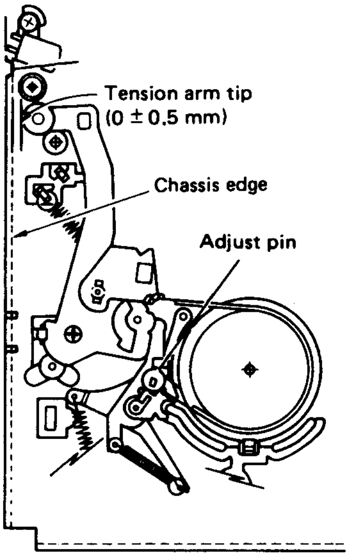
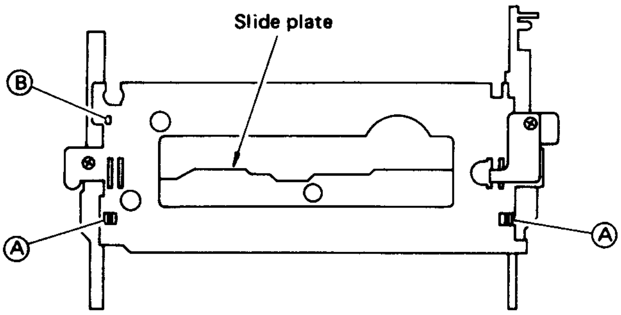
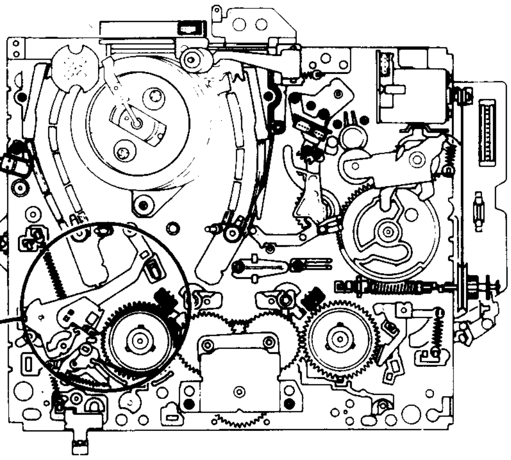
Table 1-4-1 Approximate maintenance schedule

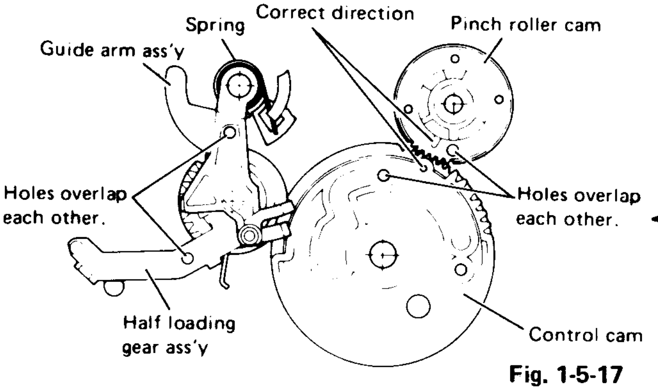
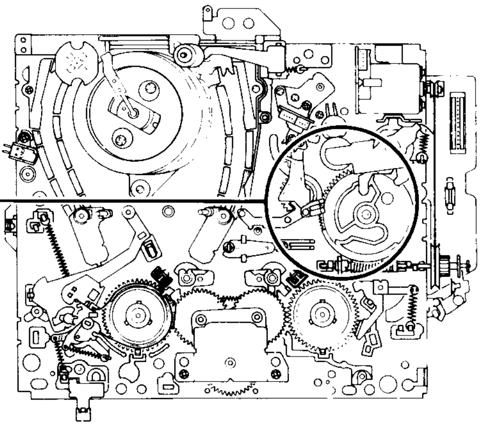
1.5 MAIN PARTS REMOVAL AND REPLACEMENT

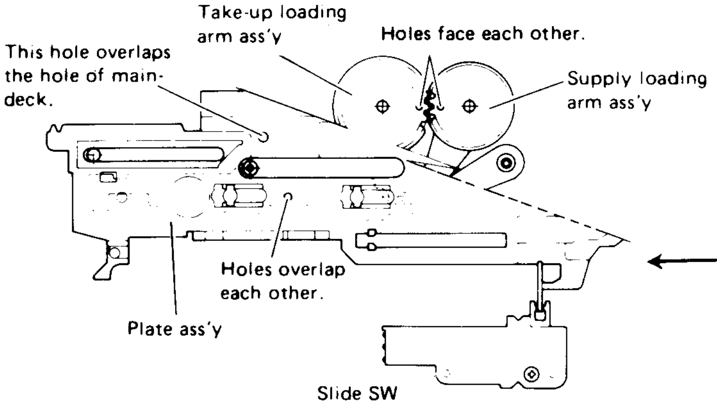
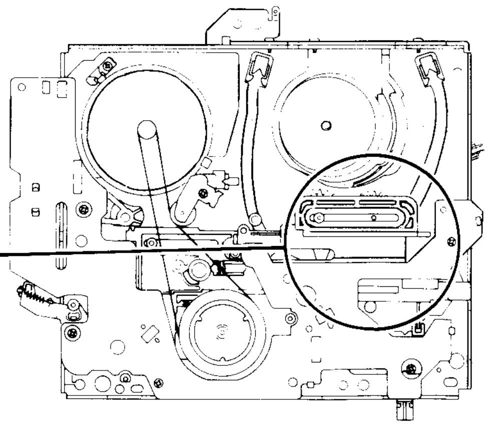
No.	Item	Checkpoints	Adjustment and Checks
1	Upper drum assembly •Symptoms: FM signal absent, intermittent or weak on one channel; large difference in channel output levels •Cause: Worn or damaged video heads, poor response, etc.  LP CH1 SP CH2 Hole B FMA CH2 Hole A FMA CH 1 SP CH1 LP CH2 **Fig. 1-5-1** DRUM TOP VIEW	 **Fig. 1-5-2** Drum Position Mounting direction See Fig. 1-5-1. (Symptom: no picture)	After replacing, observe that upper drum hole A is opposite the motor axis from lower drum hole B.
		Axis wobble See Fig. 1-5-2. (Symptom: jitter, poor FM linearity) PB FM: MAIN board TP206 FF: MAIN board TP411	Record and playback in LP mode. Confirm absence of large difference between channels. (Fig. 1-5-3)  **Fig. 1-5-3** Axis wobble
	 Adjust Roller driver PTU94002 Hex driver Loosen Tighten 1.25mm **Fig. 1-5-4** S.T. Pole base	FM linearity check See Fig. 1-5-5. (Symptom: vertical sync absent, picture noise) PB FM: MAIN board TP206 FF: MAIN board TP411  **Fig. 1-5-5** FM linearity $\frac{b}{a} \geqq 0.7, \frac{c}{a} \geqq 0.65, \frac{d}{a} \geqq 0.65$	 **Fig. 1-5-6** S.T. Pole base position 1) Play stairstep signal of the MH-2 Alignment Tape. Confirm absence of obvious FM waveform loss and that operating the Tracking yields the optimum point. 2) Refer to Fig. 1-5-4, adjust for loss at the left edge (drum entry) of the FM waveform by turning the guide roller of the supply pole base. Similarly, adjust for loss at the right edge (drum exit) by turning the guide roller of the take-up pole base. **Note:** ***If FM loss occurs on both channels and cannot be corrected by adjusting the guide rollers, the lower drum needs replacement.***

No.	Item	Checkpoints	Adjustment and Checks
	PB switching point •Symptom: switching noise at picture bottom.  Fig. 1-5-7 PB Switching Point	VIDEO OUT or TP210 (MAIN board)	1) Connect VCR to AC. Turn power on. 2) Connect an oscilloscope to VIDEO OUT or TP210. 3) Insert the MH-2 alignment tape to the cassette housing. Play back the stairstep segment of MH-2 alignment tape. 4) Trigger the oscilloscope externally (– slope) with the signal from TP411 (DRUM FF) of the MAIN board. 5) Adjust R427 to position the trigger point 6.5 H ±0.5 H from V. sync as shown in Fig. 1-5-7.
2	Lower drum assembly •Symptoms: Poor FM linearity, noisy rotation, jitter •Cause: Lead and bearing wear	Check FM linearity and switching point.	See above upper drum assembly items.
		Check control head phase (X value) Symptom: tracking error PB FM: MAIN board TP206 FF: MAIN board TP411	1) Play stairstep signals of MH-2 and MH-2L Alignment Tapes. Engage the Tracking Preset mode by pressing the ∨ and ∧ buttons simultaneously in the onscreen mode. Confirm that the same maximum FM waveform level is obtained as when the tracking is adjusted manually. 2) Refer to the A/C head adjustments.
3	**A/C head**  Fig. 1-5-8 Temporary height  Screw ① Screw ② A/C head Tape T. guide pole Screw ③ Fig. 1-5-9 Inclination/Azimuth/ Height adj.		Fig. 1-5-10 A/C HEAD position
		Temporarily set height as indicated in Fig. 1-5-8.	Set the height as indicated in Fig. 1-5-8 to facilitate tape transport checks and adjustments.
		Tilt (forward inclination) See Fig. 1-5-9. (Symptom: audio level varies greatly.)	1) Run tape, turn screw ① counterclockwise to where slight curling of the tape occurs at the lower flange of the take-up guide roller. 2) Then slowly turn the screw clockwise to where the curling ceases.
		Azimuth See Fig. 1-5-9. (Symptoms: audio low level or noisy) Audio output: AUDIO OUT	1) Set front panel AUDIO MONITOR selector to Normal and play stairstep signal (with audio 6 kHz) of the MH-2 Alignment Tape. Observe audio output signal with oscilloscope. 2) Turn screw ② and adjust for maximum audio output level.

No.	Item	Checkpoints	Adjustment and Checks
	 **Fig. 1-5-11** Height Adj	Height See Figs. 1-5-9 and 1-5-11. (Symptom: low audio and control signal levels)	1) Run tape and observe the control head area. 2) Turn screws ①, ② and ③ by small and equal amounts until 0.1 to 0.2 mm of the head core bottom can be seen. **Note:** ***If difficult to observe, play stairstep signal of MH-2 Alignment Tape and adjust for maximum audio output and control pulse level.***
		FM linearity	Refer to upper drum assembly items. If adjustment is major, again check the azimuth.
	 Screw ④ A/C head (From Drum) Screw ⑤ (To Capstan) **Fig. 1-5-12** CTL head phase  **Fig. 1-5-13** CTL head phase **Note:** ***Trigger the oscilloscope externally signal from TP411 (DRUM FF). Use (+) trigger for MH-2 and MH-2L alignment tape. Narrow head is employed for this model.***	Control head phase See Fig. 1-5-12 PB FM: MAIN board TP206 FF: MAIN board TP411	1) Play stairstep signal of MH-2 Alignment Tape and observe the FM waveform. Set for Tracking Preset by pressing the + and − buttons simultaneously in the onscreen mode. 2) Loosen screws ④ and ⑤. Set the A/C head positioning tool on screw ④, with the stud inserted into the nearby oblong hole. 3) Turn the tool first to position the A/C head fully toward the capstan. Then gradually return it toward the drum and stop at the position of maximum FM waveform output level as shown in Fig. 1-5-13. 4) Tighten screw ⑤ . Remove the tool and tighten screw ④. 5) Play stairstep signal of MH-2L Alignment Tape and confirm maximum FM waveform output level as shown in Fig. 1-5-13. 6) If not maximum, slightly loosen screws ④ and ⑤. Use the tool and adjust the head position for the nearest maximum point. Then tighten screws ④ and ⑤.
		LP auto tracking adjustment	1) Terminate the video output at 75 ohms with a monitor-TV and connect oscilloscope to PB FM (TP206). 2) Set MH-2L Alignment Tape into the cassette housing and play the stairstep signal. 3) Confirm that the A/V digital tracking LED changes from flashing to lighted. 4) Press button "D" of the preset unit (PTU 94008) to extinguish the A/V digital tracking LED. 5) Again press button "D" to enter the LP interchangeability adjust mode. Confirm that the A/V digital tracking LED changes from flashing to extinguished. Press the stop button. **Note:** ***If the Alignment Tape ejects automatically, repeat the control head phase adjustment.***

No.	Item	Checkpoints	Adjustment and Checks
4	**Tension arm assembly** **Tension band assembly**  Tension arm tip (0 ± 0.5 mm) Chassis edge Adjust pin **Fig. 1-5-14** Tension arm assy  **Fig. 1-5-16** Cassette housing	**Tension pole position** See Fig. 1-5-14. **(Symptom: poor FM waveform response)**	 **Fig. 1-5-15** Tension arm position 1) Remove video cassette tape and set for the playback mode as following steps. 2) Disconnect VCR from AC. Slightly rotates the loading motor counterclockwise by hand, then press the lock level portion Ⓐ of the cassette housing by hand as shown in Fig. 1-5-16. 3) Move the raised portion of the cassette housing slide plate to fully forward by hand with loading motor. At this time, again press the lock level portion Ⓑ of the cassette housing slide plate to lower the cassette housing (internal holder of the cassette housing is locked in lowered position). 4) Cover the cassette LED with opaque material (insulated tape with black). 5) Connect VCR to AC. Press the power button on the Front panel and set for the playback mode. 6) Turn the eccentric adjust pin to align the edge of the chassis with the tension arm tip as shown in Fig. 1-5-14.
		Back tension **(Symptom: skew)**	**1) When the tension pole position is correctly adjusted, the back tension will assume the correct value.** **2) Use the Back Tension Cassette Gauge and set for the playback mode. Confirm reading of 35 g·cm to 48 g·cm.** **3) Changing the tension pole position in order to vary the back tension will cause adverse effects elsewhere.**

No.	Item	Checkpoints	Adjustment and Checks
5	Pinch roller cam Control cam Half loading gear assembly Guide arm assembly  Spring Correct direction Pinch roller cam Guide arm ass'y Holes overlap each other. Holes overlap each other. Half loading gear ass'y Control cam **Fig. 1-5-17** Control/Pinch roller cam	Important: Do not remove or disturb parts other than those mentioned. See Fig. 1-5-17.	Set mechanism to Eject mode internal holder of the cassette housing is locked in raised) position.  **Fig. 1-5-18** Control cam position 1) When installing the pinch roller cam, overlap the largest hole of the gear portion with the hole of the deck. 2) Set the control cam on the deck with the hole of the groove overlapped with the hole of the deck. Observe that the small hole of the control cam and the ridge of the pinch roller cam are aligned. (If the control cam does not fit readily, shift the rear plate assembly within the range of play.) 3) Install the half loading gear assembly with the hole overlapped with the hole of the deck. Secure with E-ring. 4) Install the guide assembly over the spring and with the hole overlapping that of the deck. Engage the spring correctly.
		Cassette housing assembly	Install the cassette housing assembly with the mechanism in the Eject mode. Also observe that the inner holder of the housing is raised and locked.
6	Clutch assembly	Take-up torque (Symptom: inadequate take-up torque)	1) Remove cassette housing and set for playback mode (see Section 1.2). 2) Set torque gauge on the take-up reel disk. Gradually relax your grip on the gauge and read the needle indication at the point the gauge begins to rotate with the disk. Confirm indication of 60 g·cm to 100 g·cm.

No.	Item	Checkpoints	Adjustment and Checks
7	Take-up loading arm assembly Supply loading arm assembly Plate assembly		**Note:** • *Set mechanism to the Eject or Stop mode before removing these parts.* • *The flange of the plastic rivet securing the loading arm assembly and the pole base assembly can be damaged by attempting to remove it directly. Press the loading arm assembly firmly to prevent motion. Then use a narrow-shafted tool to press the rivet from the shaft end to remove it.*
		Mounting position alignment • Remove the tension arm assembly to facilitate operation. See Fig. 1-5-19.	1) Set the supply and take-up loading arm assemblies so that the holes of the gear portions are aligned, then secure to the pole base assemblies with rivets. 2) Shift the plate assembly and install with the holes of the upper and lower components overlapped.
		Slide switch See Fig. 1-5-19.	Be sure to engage the slide switch slider with the edge of the plate assembly.
	 Take-up loading arm ass'y Holes face each other. This hole overlaps the hole of main-deck. Supply loading arm ass'y Holes overlap each other. Plate ass'y Slide SW **Fig. 1-5-19** Mounting position alignment		 **Fig. 1-5-20** T.S. Loading arm position

SECTION 2
ELECTRICAL ADJUSTMENTS

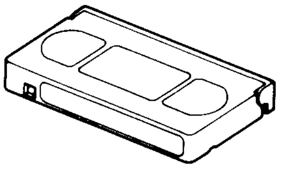
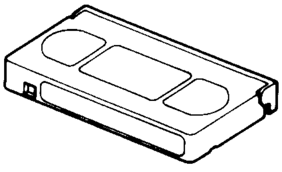
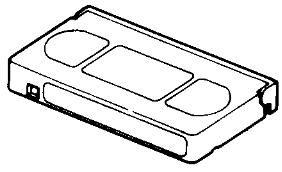
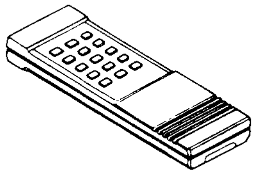
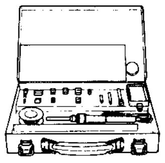
2.1 PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts.
It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

2.1.1 Required test equipment

1. Colour television or monitor
2. Oscilloscope: wide-band, dual-trace, triggered delayed sweep
3. Frequency counter
4. Audio oscillator
5. Audio voltmeter
6. Digital voltmeter
7. Signal generator: RF/IF sweep/marker
8. Signal generator: PAL/SECAM colour bar, stairstep
9. Distortion meter
10. Recording tape

2.1.2 Required adjustment tools

Alignment tape (SP) MH-2	Alignment tape (LP) MH-2L
	
Alignment tape (FM AUDIO) MH-F2	Presetting unit PTU94008
	
*SMC replacement tools YTU94038B	
	

NOTE:** ***It is convenient for replacing chip parts.

2.1.3 Colour bar signal and pattern

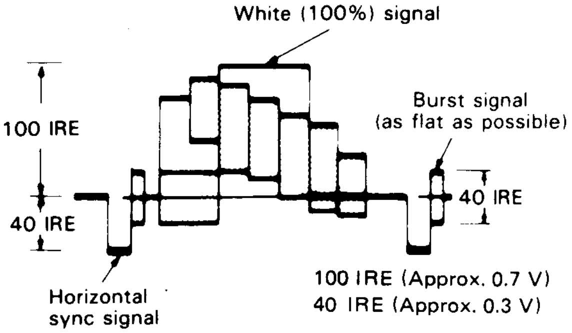

White (100%) signal
Burst signal
(as flat as possible)
100 IRE
40 IRE
40 IRE
Horizontal
sync signal
100 IRE (Approx. 0.7 V)
40 IRE (Approx. 0.3 V)

Fig. 2-1-1 Colour bar signal of pattern generator

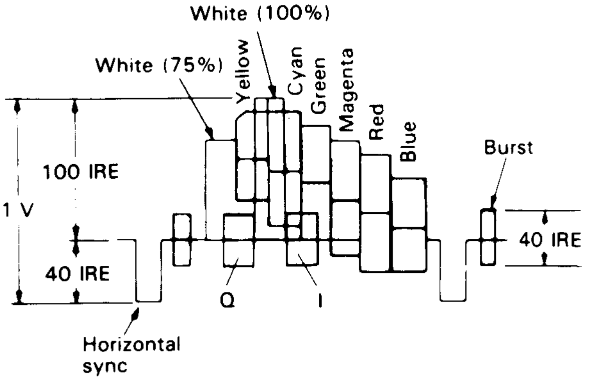

White (100%)
White (75%)
Yellow
Cyan
Green
Magenta
Red
Blue
Burst
100 IRE
1 V
40 IRE
40 IRE
Q
I
Horizontal
sync

Fig. 2-1-2 Colour bar signal waveform

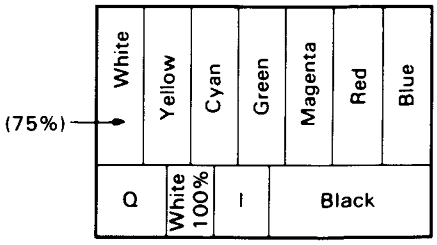

White
Yellow
Cyan
Green
Magenta
Red
Blue
(75%)
Q
White 100%
I
Black

Fig. 2-1-3 Colour bar pattern

2.1.4 Way to refer to adjustment procedure table

Check and adjustment procedure of the electrical circuit is explained in tables by item. Refer to the table as explained below.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
①	②	③	④	⑤	⑥	⑦

① No. : Number of inspection or/and adjustment item. It is advised to proceed in this numerical order.
② Item : Name of check/adjustment particularily termed for servicing
③ Mode : Setting mode of the VTR for the check/adjustment

- EE : Electric-to-Electric mode (Stop state with power on)
- REC : Recording mode
- PB : Playback mode
- REC → PB (or another) : Perform recording first, then deal with the recorded portion in playback (or another) mode.

④ Signal & Setting : Input signal and something required for the check/adjustment

- AUX colour bar: Colour bar signal input in AUX IN mode
- AUX no signal: No input signal in AUX IN mode
- Tuner : Tuner receiving mode (RF input)
- Alignment tape color bar : Playback of alignment tape's color bar signal
- Alignment tape stairstep : Playback of alignment tape's stairstep signal
- Alignment tape 1 kHz : Playback of alignment tape's 1 kHz signal
- SP : Standard play mode
- LP : Long play mode
- Digital tracking ON : Digital tracking set to ON
- Digital tracking OFF : Digital tracking set to OFF (for manual tracking)

⑤ Measurement Point : Measuring point such as test point (TP) on P.C. board and pin of IC to connect measurement device for measurement/observation of waveform, voltage, frequency, etc.
⑥ Adjustment Parts : Symbol No. of variable components such as variable resistors, trimmer capacitors, etc. for adjustment
⑦ Adjustment Procedure : Preparation, order, manner, attentive matter, etc. to proceed check and adjustment

2.1.5 Confirmation

Before adjustment, use the MENU button function to set the CLOCK SET and TUNER SET.

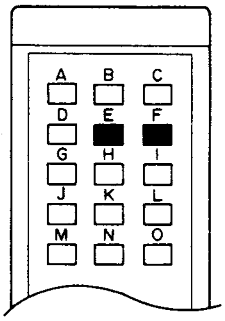
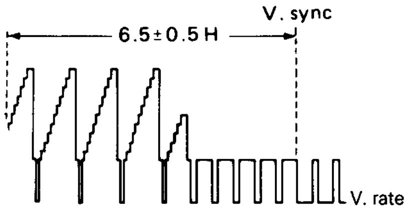
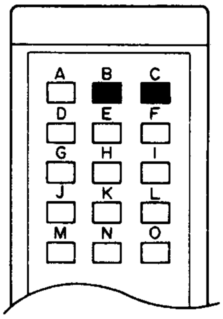
2.2 REGULATOR CIRCUIT

Note: ***Unless otherwise specified, all measurement points and adjustment parts are located on the* 03 *MAIN board.***

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	5 V DC output	• REC	• TUNER • SP	• TP801 (SWD 5V) • TP803 (GND)	• R811 (SWD 5V)	1) Connect a digital voltmeter between TP801 and TP803. 2) Adjust R811 for 5.30 ± 0.05 V DC.

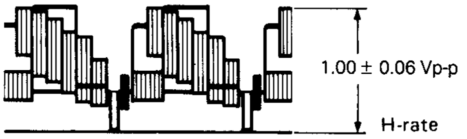
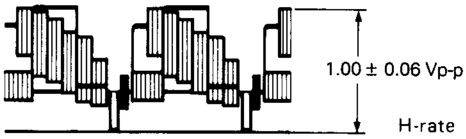
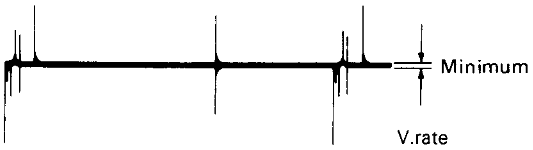
2.3 SERVO CIRCUIT

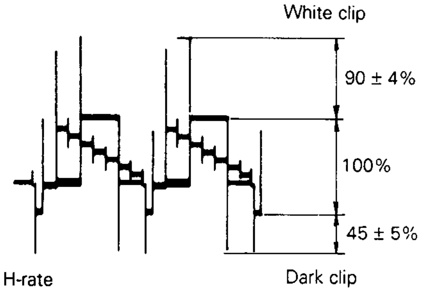
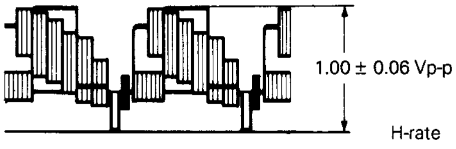
Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the* 03 *MAIN board.*

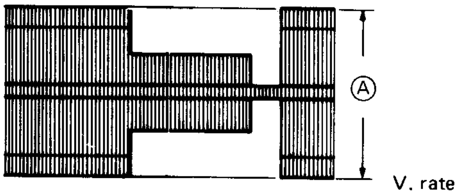
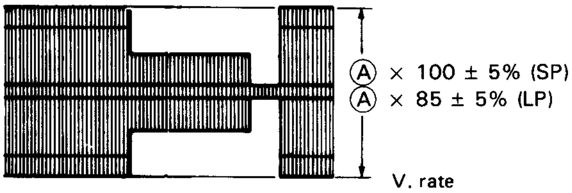
No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	SP PB switching point	• PB	• Alignment tape stairstep (MH-2) • SP • Trigger slope (–) • Digital tracking: OFF	• TP210 (VIDEO OUT) • TP411 (DRUM FF) (Ext. trigger)  A B C D E F G H I J K L M N O **Fig. 2-3-1** Presetting unit  **Fig. 2-3-2** PB switching point	• Presetting unit (PTU-94008)	**Note:** *Set VCR to the mode A by remoto controller.* 1) Connect an oscilloscope to TP210. 2) Play back the stairstep signal of the alignment tape. 3) Set the tracking control of the front panel to the center position by simultraneously pressing the "∧"CH and "∨"CH channel buttons. 4) Adjust by pressing "E(–)" or "F(+)" buttons of presetting unit for position the trigger point 6.5 ± 0.5H from V. sync. **Note:** *Use only buttons "E" and "F".* *Depressing other buttons during adjustments may cause adjustment errors.*
2	Slow tracking preset	• REC ↓ PB (slow)	• SP	• TV monitor  A B C D E F G H I J K L M N O **Note:** *Use only buttons "B" and "C".* *Depressing other buttons during adjustments may cause adjustment errors.* **Fig. 2-3-3** Presetting unit	• Presetting unit (PTU-94008)	**Note:** *Set VCR to the mode A by remoto controller.* 1) Receive a colour broadcast or supply a colour bar signal to VIDEO IN. 2) Record a colour broadcast or colour bar signal in the SP mode. 3) Play back recorded signal on the FWD slow mode and set the tracking control of the FRONT panel to the center position by simultaneously pressing the " ∧ CH" and " ∨ CH" channel (tracking) buttons. 4) Observe the display on a monitor-TV and adjust for optimum noise condition (best tracking) by depressing "B (–)" or "C (+)" buttons of presetting unit as required. 5) Depress the STOP button on the FRONT panel. 6) Confirm that the bar noise is not visible on the monitor in the slow mode. 7) Repeat steps 3) to 6) in REV slow mode.
		• REC ↓ PB (slow)	• LP			8) Record a colour broadcast or colour bar signal in the LP mode. 9) Repeat steps 3) to 7). **Note:** *Slow motion will start automatically after pressing the pause button for more than 2 seconds.*

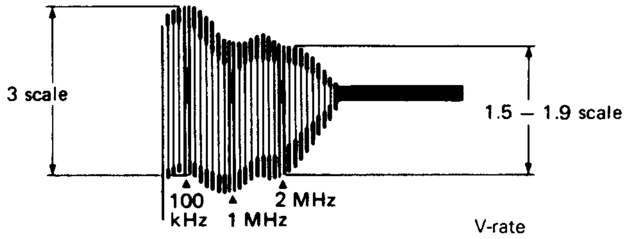
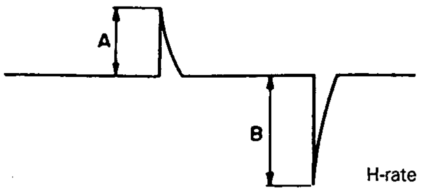
2.4 VIDEO CIRCUIT

Note:
- *Unless otherwise specified, all measurement points and adjustment parts are located on the* 03 *MAIN board.*
- *When items No. 1 through 5 need to adjust, replace respective adjustment parts with variable resistors corresponding to since there are trimming resistors used.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	EE Y level	• EE	• AUX colour bar	• TP210 (VIDEO OUT)	• R60 (EE Y LEVEL) 05 VIDEO UNIT	1) Connect an oscilloscope to TP210. 2) Confirm that Y level is 1.00 ± 0.06 Vp-p. 3) If necessary, replace R60 with the variable resistor NVP1301-103N and adjust it for 1.00 ± 0.06 Vp-p.
			 **Fig. 2-4-1** VIDEO OUT			
2	PB Y level	• REC ↓ PB	• AUX colour bar • SP	• TP210 (VIDEO OUT)	• R17 (PB Y LEVEL) 05 VIDEO UNIT	1) Connect an oscilloscope to TP210. 2) Record and play back a colour bar signal. 3) Confirm that Y level is 1.00 ± 0.06 Vp-p. 4) If necessary, replace R17 with the variable resistor NVP1301-222N and adjust it for 1.00 ± 0.06 Vp-p.
			 **Fig. 2-4-2** PB Y level			
3	Y NR level	• EE	• AUX colour bar	• IC1-9 05 VIDEO UNIT	• R56 (NC BALANCE) 05 VIDEO UNIT	1) Connect an oscilloscope to IC1 pin 9. 2) Confirm that DC step difference is minimum. 3) If necessary, replace R56 with the variable resistor NVP1301-152N and adjust for minimum DC step difference.
			 **Fig. 2-4-3** YNR NC balance			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
4	White & Dark clip	• EE	• AUX colour bar	• IC1-22 05 VIDEO UNIT	• R64 (WHITE CLIP) 05 VIDEO UNIT	1) Connect an oscilloscope to IC1 pin 22. 2) Confirm that white clip is 90 ± 4 % and dark clip is 45 ± 5 %. 3) If necessary, replace R64 with the variable resistor NVP1301-332N and adjust it for 90 ± 4 % white clip and 45 ± 5 % dark clip.
			 White clip 90 ± 4% 100% 45 ± 5% H-rate Dark clip **Fig. 2-4-4** White & Dark clip			
5	Carrier & Deviation	• EE	• AUX no signal	• CN2-9 05 VIDEO UNIT	• R41 (CARRIER) 05 VIDEO UNIT	1) Connect a frequency counter to CN2 pin 9. 2) Confirm that frequency is 3.8 MHz ± 40 kHz. 3) If necessary, replace R41 with the variable resistor NVP1301-223N and adjust it for 3.8 MHz ± 40 kHz.
		• REC ↓ PB	• AUX colour bar	• TP210 (VIDEO OUT)	• R42 (DEVIATION) 05 VIDEO UNIT	4) Record and play back a colour bar signal. 5) Confirm that Y level is 1.00 ± 0.06 Vp-p. 6) If necessary, replace R42 with the variable resistor NVP1301-103N and adjust it for 1.00 ± 0.06 Vp-p. **Note:** ***Ordinarily avoid performing this adjustment. It should be performed only if IC1 of the VIDEO UNIT board has been replaced or if significant waveform distortion and S/N deterioration occur during recording and playback due to deficient adjustment of the carrier set and deviation.***
			 **Fig. 2-4-5** Carrier and deviation			

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
6	REC colour level	• PB	• Alignment tape colour bar (MH-2) • Digital tracking: OFF	• IC1-41 $\boxed{0}\boxed{5}$ VIDEO UNIT • TP210 (VIDEO OUT)	• R215 (SP REC COLOUR)	1) Playback the colour bar signal of the alignment tape. 2) Observe waveform at IC1-41 with external trigger from TP411. 3) Adjust by pressing the "∧" and "∨" tracking buttons on the front for maximum colour level. 4) Make a note of the higher channel level as "Ⓐ".
		 Fig. 2-4-6 REC colour level-1				
		• REC ↓ PB	• SP			5) Record the colour bar signal in SP mode, and play it back to observe waveform at IC1-41. 6) Adjust R215 repeatedly in recording so that the higher channel level is " Ⓐ " x 100% in playback.
		 Fig. 2-4-7 REC colour level-2				
		• PB • REC ↓ PB	•Alignment tape colour bar (MH-2L) • LP		• R222 (LP REC COLOUR)	7) Connect a jump wire between TP404 and GND. 8) Repeat steps 1) to 5) in LP mode. 9) Adjust R222 repeatedly in recording so that the higher channel level is " Ⓐ" x 85% in playback.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
7	LP VIDEO EQ	• REC ↓ PB	• Video sweep • LP • Auto tracking: off	• TP210 (VIDEO OUT)	• R207 (LP VIDEO EQ)	1) Terminate VIDEO OUT with monitor-TV (75Ω load), supply a video sweep signal without burst to VIDEO IN. 2) Set recording video cassette into the cassette housing. Record a video sweep signal without burst in the LP mode. 3) Connect an oscilloscope to TP210. Play back recorded video sweep signal in the LP mode, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (∨) and (∧) tracking buttons. 4) Use the control of the oscilloscope to position the 100 kHz region at graduation 3 (0 dB) of the oscilloscope scale. 5) Adjust R207 to position the 2 MHz of channel-1 portion at 1.5 – 1.9 (–5 ± 1 dB) of the oscilloscope graduations as shown in Fig. 2-4-8.
	 **Fig. 2-4-8** PB frequency					
			• TV broadcast • Auto tracking off	• TV monitor	• R207 (LP VIDEO EQ)	**Alternate method** **1) Set recording video cassette into the cassette housing, receive a colour broadcast.** **2) Record a colour broadcast that shows a good depiction of human facial contours.** **3) Play back recorded colour broadcast, set the tracking of the front panel to the auto tracking off position by simultaneously pressing the (∧) and (∧) tracking buttons.** **4) Adjust R207 to obtain distinct facial features on the monitor.**
8	ME SECAM DET	• EE	• AUX SECAM colour bar	• TP244 (MESECAM DET)	• L282 (MESECAM DET)	1) Connect an oscilloscope to TP244. 2) Adjust L282 so that A and B are related as follows: A : B = 3 : 4
	 **Fig. 2-4-9** SECAM DET					

2.5 TIMER CIRCUIT

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Clock	• EE		• IC1-16 $\boxed{2}\boxed{0}$ TIMER	• C6 (CLOCK) $\boxed{2}\boxed{0}$ TIMER	**Note:** ***For below adjustments use 10:1 probe with input capacitance lessthan 100 pf.*** 1) Disconnect VCR from AC. Connect a frequency counter between IC1-16 and GND. 2) Short IC1-8 to GND, then short the leads of capacitor C3 once in order to reset IC1. 3) Connect VCR to AC. All FDP Segments are on. 4) Adjust C6 for 2048.000±0.002 Hz (488.2808 to 488.2818 μs).

2.6 AUDIO CIRCUIT

Notes: • *Unless otherwise specified, all measurement points and adjustment points are located on the* 09 *AUDIO UNIT board.*

• *When items No. 3 and 4 need to adjust, replace respective adjustment parts with variable resistors corresponding to since there are trimming resistors used.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Audio bias level	• REC	• AUX No signal • SP	• TP31(+) • TP32(–) 03 MAIN	• R16 (BIAS) 03 MAIN	1) Connect a millivoltmenter between TP31 (INPUT) and TP32 (GND). 2) Set for REC mode without incoming signal. 3) Adjust R16 for 2.6 mVrms.
2	EE level	• EE	• AUX 1 kHz • Audio monitor: HI-FI • HI-FI REC BALANCE: Center • HI-FI REC LEVEL: Center	• AUDIO OUT	• R13 (VOLUME) • R15 (BALANCE) 03 MAIN	1) Supply a sine wave of 1 kHz, –8 dBs (0.9 Vp-p, 0.32 Vrms) to the Peri. In terminal. 2) Adjust R13 and R15 so that output level of both channels L and R are the same.
3	Carrier	• EE		• IC1-22 (L CH) • IC1-39 (R CH)	• R11 (L CARRIER) • R25 (R CARRIER)	1) Connect a frequency counter to pin 22 of IC1, and confirm that the frequency is 1.4 MHz ± 5 kHz. 2) If necessary, replace R11 with the variable resistor NVP1301-103N, and adjust them for 1.4 MHz ± 5 kHz. 3) Connect a frequency counter to pin 39 of IC1, and confirm that the frequency is 1.8 MHz ± 5 kHz. 4) If necessary, replace R25 with the variable resistor NVP1301-332N, and adjust it for 1.8 MHz ± 5 kHz.
4	PB level	• PB	• MH-F2 1 kHz • Auto tracking: off • Audio monitor: HI-FI	• AUDIO OUT	• R5 (R PB LEVEL) • R30 (L PB LEVEL)	1) Connect an audio tester to audio out (left channel). Play back the 1 kHz segment of the alignment tape. 2) Confirm that output level is –6 dBs (1.1 Vp-p) ± 2 dBs. 3) If necessary, replace R5 and R30 with with the variable resistor NVP1301-153N respectively, and adjust them for –6 dBs.

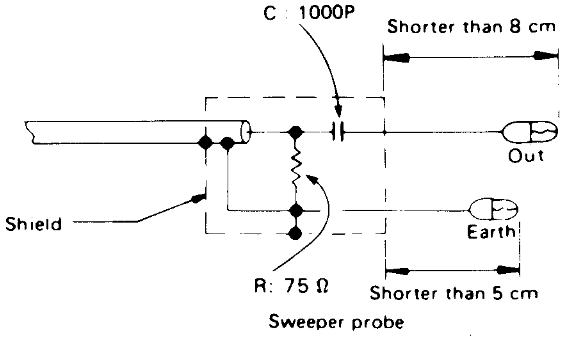
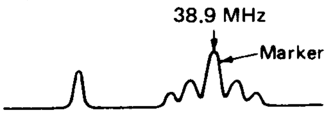
2.7 ON SCREEN CIRCUIT

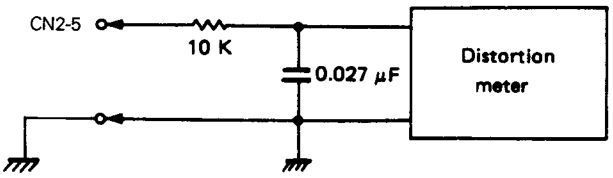
Note: *Unless otherwise specified, all measurement points and adjustment parts are located on the 1 7 ON SCREEN board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
1	Dot clock	• EE	• TUNER	• TP901	• C905 (DOT CLOCK)	1) Connect a frequency counter to TP901. 2) Short IC901-3 to GND and short IC901-30 to IC901-32 (SWD 5V). 3) Adjust C905 for 7.30 ± 0.05 MHz. Note: *If incorrectly the above adjustments, slip out the on screen display.* *For adjustment of above steps (2) to (4), looking for Menu on the monitor-TV and rough adjustment C905 preparation.*
2	Burst clock	• EE	• TUNER	• TP902	• C916 (BURST CLOCK)	1) Connect a frequency counter to TP902. 2) Adjust C916 for 17.73447 ± 0.00030 MHz. Note: *If incorrectly the above adjustment, blue back picture is not appear on the monitor-TV.* *For adjustment of above steps (1) to (2), looking for Menu on the monitor-TV and rough adjustment C916 preparation.*

2.8 TUNER/IF CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on 0 8 TUNER/IF board.*

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
Equipment required: 1. Oscilloscope 2. IF sweep signal generator with suitable markers (PIF, etc.) 3. Sweeper probe (sweep signal supply cable) as shown below.  C : 1000P Shorter than 8 cm Out Shield Earth R: 75 Ω Shorter than 5 cm Sweeper probe **Fig. 2-8-1**						
1	VCO	• EE	• TUNER  VCO and sweep signal (beat) **Fig. 2-8-2**	•IC1-17	• T1 (VCO)	1) Use a sweeper probe as shown in Fig. 2-8-1 and connect the sweep generator output to pin 1 of SAW 1. 2) Adjust the sweep gain so that the waveform does not distort as observed with the oscilloscope. 3) Connect the oscilloscope to pin 17 of IC1 (VIDEO DET OUT) and adjust T1 to align the waveform with the frequency marker as shown in Fig. 2-8-2.
			•TUNER •TV broadcast	•TV monitor	•T1	**Alternate method:** 1) Receive a colour broadcast. 2) Adjust T1 to obtain a fine picture on the monitor.

No.	Item	Mode	Signal & Setting	Measurement Point	Adjustment Parts	Adjustment Procedure
	● **Before the following adjustment:** 1. Connect a cable to ANT IN and terminate TV OUT at 75 Ω. 2. Set a TV channel signal generator as follows. Video : 65 dBµ/75Ω, color bar 87.5% modulation Audio : 55 dBµ/75Ω. 1 kHz ± 50 kHz deviation					
2	RF AGC	• EE	• Tuner • TV broadcast	• Front end	• R72 (RF AGC)	1) Connect the oscilloscope to IF terminal of U/V Tuner (Front end). Adjust R72 for maximum level, then again adjust R72 for –8 dB again.
				• TV monitor		**Alternate method:** Note: *Adjust R6 (RF AGC) to correct for excess noise in the picture or when streaky cross interference occurs due to strong electrical fields.* 1) Adjust R72 to minimize noise or streaks on the TV screen. 2) Check for absence of abnormality on all channels.
3	FM DETECT	• EE	• Tuner • TV broadcast	• CN2-5	• T3 (FM DETECT)	1) Use a adjustment circuit as shown in Fig. 2-8-3 and with AFC mode to NORM, connect a distortion meter as shown in Fig. 2-8-3. 2) Adjust T3 for minimum distortion (less than 1.5%).
	 **Fig. 2-8-3** Adjustment circuit					
				• Across C4		**Alternate method:** 1) Receive a colour broadcast on a VHS-HI channel (7 to 13). Connect an oscilloscope to across C4 of the MAIN board. 2) Adjust T3 for maximum level at audio sound.
4	Sound trap	• EE	• TUNER • TV broadcast	• TV monitor	• T4 (SOUND TRAP)	**Alignmate method:** 1) Receive a colour broadcast on a VHF channel. 2) Adjust T4 for maximum level at audio sound.

2.9 DEMODULATOR CIRCUIT

Note: *Unless otherwise specified, all measurement points and adjustment parts are located on* $\boxed{1}\,\boxed{4}$ *DEMODULATOR board.*

Audio Multiplex TV Signal Generator

Recommanded Specifications

1. Signal Format	Based on CCIR-B
2. Frequency	
Video Carrier FV	38.9 MHz
1st Sound Carrier fs_1	33.4 MHz
2nd Sound Carrier fs_2	33.1578125 MHz
3. Modulator	
Video	Crosshatch (black on white) V: 50 Hz, H: 15.625 kHz
Audio	Sinewave 1 kHz; CH1 and CH-2 outputs switchable
4. Output	97 dB/μV (open)±2 dB fixed, BNC-R 75 Ω
5. P-S Ratio	S_1 P−13 dB±2 fixed S_2 P−20 dB±2 fixed
6. Modulation	
Video	87.5%±3%
Audio	±30 kHz±2 kHz
7. Stereo Separation	Less than −40 dB
8. Pilot Signal	
Carrier Frequency	54.6875 kHz±5 Hz synchronized type
Stereo	117.5 Hz AM 50%
Dual	274.1 Hz AM 50%

9. Sound Modulation Modes	S_1	S_2
Mono	Mono 1	Mono 2
Stereo	(L+R)/2	R
Dual	Mono 1	Mono 2
10. Functions	S_1	S_2
Mono (M)	100%	100%
Stereo (L, R)	(L+R)/2	R
(L)	L/2	−
(R)	R/2	R
(OFF)	−	−
Mult (S_1, S_2)	100%	100%
(S_1)	100%	0
(S_2)	0	100%
(OFF)	0	0
V. MOD (ON/OFF)		
11. Frequency Accuracy	Within$\pm 5\times 10^{-5}$	
12. Spurious	Less than −50 dB	
13. Saw Filter	Self-contained	

<table>
<tr><th>No.</th><th>Item</th><th>Mode</th><th>Signal & Setting</th><th>Measurement Point</th><th>Adjustment Parts</th><th>Adjustment Procedure</th></tr>
<tr><td colspan="7">

- **Equipment required:**

1. Oscilloscope
2. Audio Multiplex TV Signal Generator
3. Sweeper probe (sweep signal supply cable) as showm below.

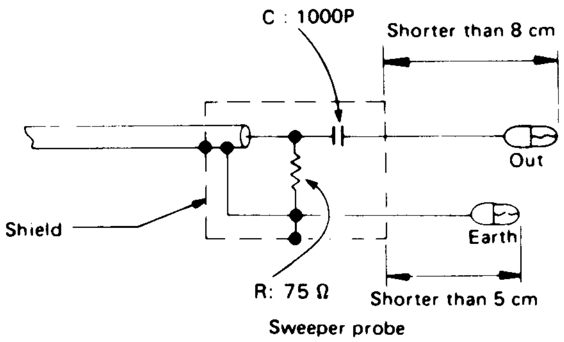
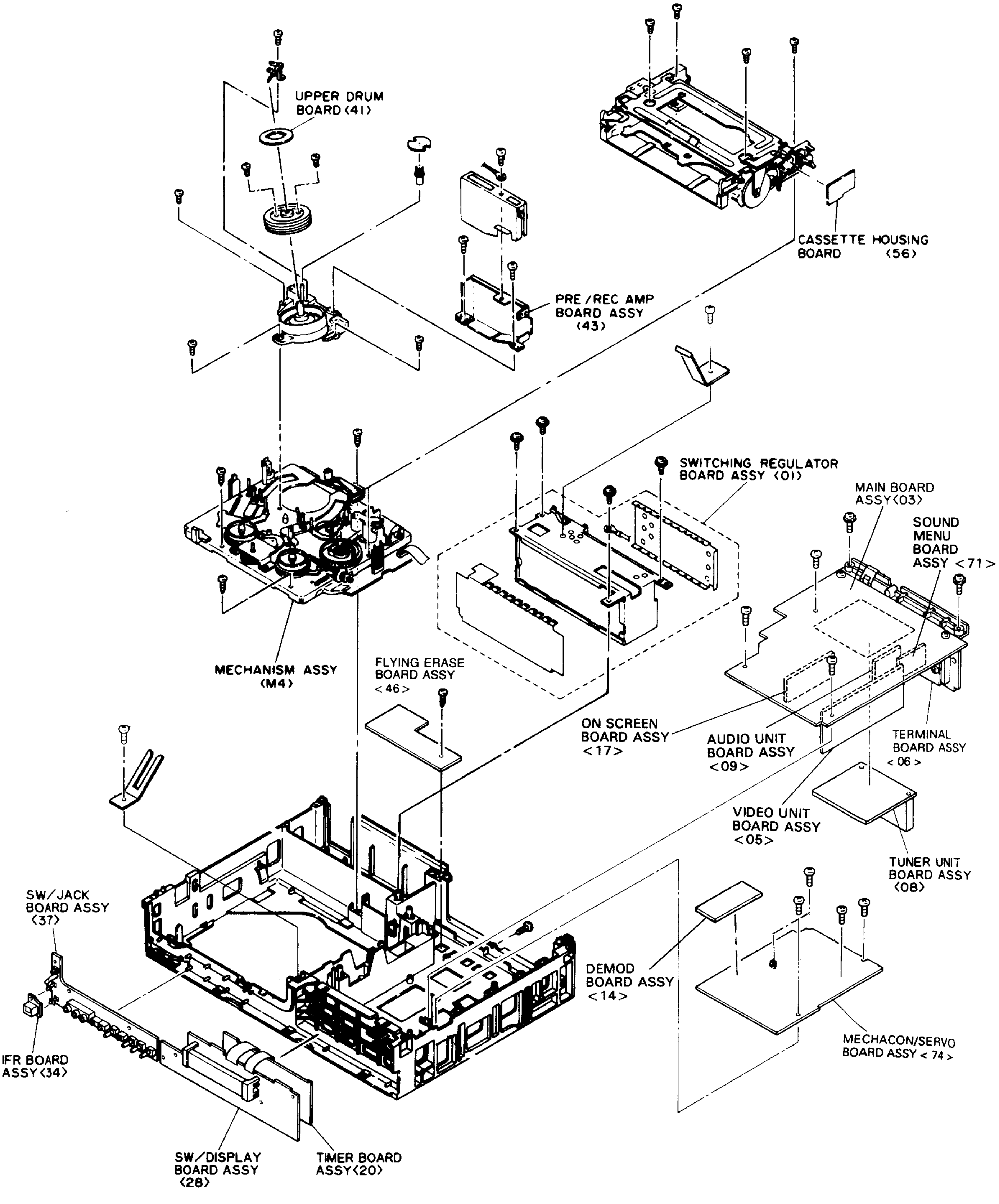


Fig. 2-9-1

</td></tr>
<tr><td>1</td><td>Stereo separation</td><td>• EE</td><td>• STEREO
• R : mod
• L : unmod</td><td>• CN204 pin 2</td><td>• R264 (STEREO SEPA)</td><td>1) Use a sweeper probe as shown in Fig. 2-9-1.
2) Set a signal generator to Stereo mode, but adjust only the R channel.
3) Connect an oscilloscope to CN204 pin 2.
4) Adjust R264 for minimum output level.</td></tr>
</table>

SECTION 3
CHARTS AND DIAGRAMS

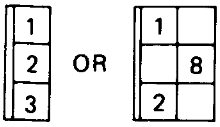
3.1 CIRCUIT BOARD LOCATION


UPPER DRUM BOARD (41)
CASSETTE HOUSING BOARD (56)
PRE/REC AMP BOARD ASSY (43)
SWITCHING REGULATOR BOARD ASSY (01)
MAIN BOARD ASSY(03)
SOUND MENU BOARD ASSY <71>
MECHANISM ASSY (M4)
FLYING ERASE BOARD ASSY <46>
ON SCREEN BOARD ASSY <17>
AUDIO UNIT BOARD ASSY <09>
TERMINAL BOARD ASSY <06>
VIDEO UNIT BOARD ASSY <05>
TUNER UNIT BOARD ASSY (08)
SW/JACK BOARD ASSY (37)
DEMOD BOARD ASSY <14>
MECHACON/SERVO BOARD ASSY <74>
IFR BOARD ASSY(34)
SW/DISPLAY BOARD ASSY (28)
TIMER BOARD ASSY(20)

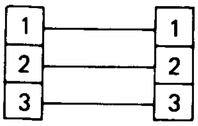
3.2 GENERAL INFORMATION

3.2.1 Connections

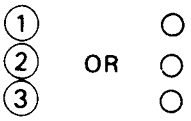
Note:
Unless otherwise specified, only signal input flow is indicated.
Connection arrows indicate only signal outputs.



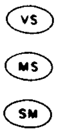
: Connectors



: Board in connectors



: Direct connections

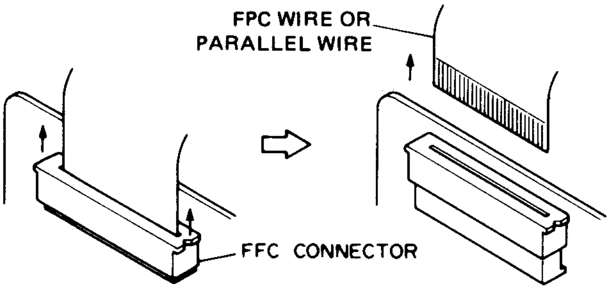


: Connected pattern in the board.
Abbreviations
V : Video M : Mechacon
S : Servo A : Audio
R : Regulator T : Terminal
O : Audio switch

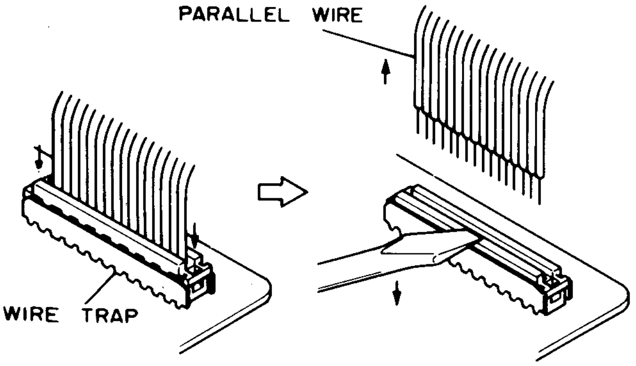
VS : Signal flow from video to servo.

3.2.2 Disconnecting the flatwire

1. Pull the connector structure upward to release the clamp when removing or inserting the flat wire cable.

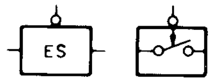


2. Depress the connector structure downward to release the clamp when removing or inserting the flat wire cable, as indicated below.

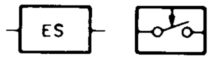


3.2.3 Indications

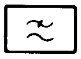
AUX : Active only at high.
$\overline{\text{AUX}}$: Active only at low.
$\bar{\text{A}}\bar{\text{U}}\bar{\text{X}}$: Active only at middle.
$\bar{\text{A}}\text{U}\bar{\text{X}}$: Active only at open.



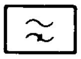
: Active only at low for electronic switch.



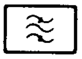
: Active only at high for electronic switch.



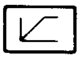
: Low pass filter.



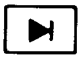
: High pass filter.



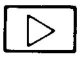
: Band pass filter.



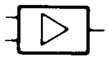
: Limiter.



: Detector.



: Amplifier.



: Mixer stage.

3.2.4 Schematic diagram values

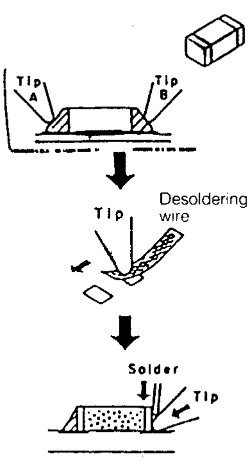
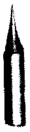
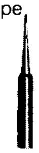
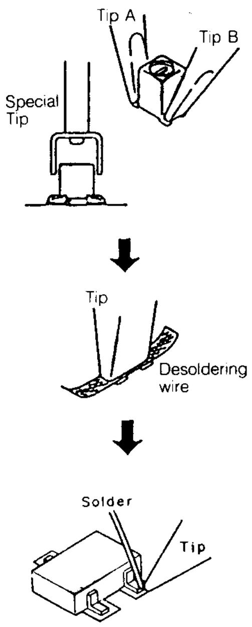
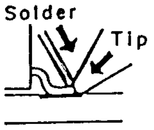
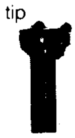
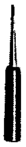
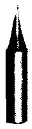
Unless otherwise specified.

1. All resistance values are in ohms, 1/6 W, 1/8 W, (refer to parts list).
2. All capacitance values are in μF, (P; PF).
3. All inductance values are in μH, (m; mH).
4. All diodes are 1SS133 or MA165, (refer to parts list).
5. Voltages are DC-measured (reference to ground) with a digital voltmeter during recording (SP mode) and playback (SP mode) with alignment tape. Where voltages differ between recording and playback, the voltage during playback is shown in parentheses.
6. Waveforms (VIDEO System) are measured (reference to ground) with a color bar during recording (SP mode) and playback (SP mode) with alignment tape.
7. Waveforms (AUDIO System) are measured (reference to ground) with 1 kHz (−8 dBs) during recording and playback with alignment tape (1 kHz).
8. Shaded (▨) parts are critical for safety.
   Replace only with specified parts numbers.

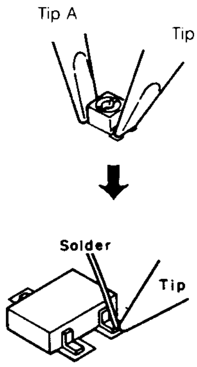
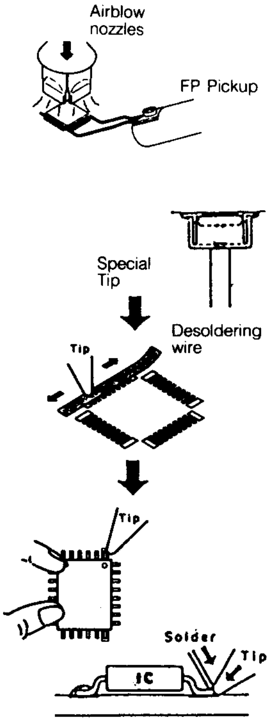
3.2.5 Signal flow in the schematic

➡ Recording signal path
⇨ Playback signal path
⇨ REC/PB signal path

3.2.6 Basic knowledge of SMC* parts replacement

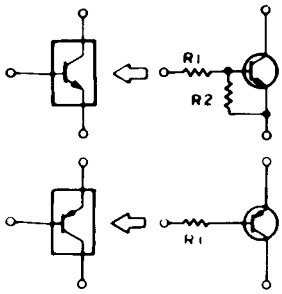
Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Thick Film Chip Resistors			• **Use 2 soldering irons** 1. Use thin tip soldering irons. 2. Use soldering tip temperature of about 280°C. 3. Simultaneously heat both ends of the part. 4. While heating, grasp the part with the tips of the soldering irons and remove it. 5. Use desoldering wire to completely remove the old solder from the part location of the board. 6. A clean pattern for installing the new part is very important.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Bring the soldering iron tip close to the part contact without actually touching it. Melt thin (0.3 mm) solder between the tip and part so that it flows into the part contact. 5. Check work quality with a magnifier.	Thin tip type  Small flat-blade tip type 	Some parts can be damaged by sudden heating. Preheat the part at about 100°C for several minutes before installing it. Do not touch the part body with the soldering iron. The thin (0.3 mm) solder for miniature parts does not contain adequate flux. Supplementary flux is thus needed in most cases. Set the position carefully and secure the part. A defective trimming resistor cannot be adjusted externally. Replace with an ordinary variable resistor.
Carbon Film Chip Resitors						
Metal Film Chip Resistors						
Chip Ceramic Capacitors						
Chip Triming Resistors						
Chip Inductors		 Tip A Tip B Special Tip Tip Desoldering wire Solder Tip	• **Special desoldering iron** 1. Select soldering tip according to part size. 2. Bring the tip into contact with the soldered points. 3. When the solder melts, remove the part. 4. Remove the old solder with desoldering wire. • **2 soldering irons** 1. Use small flat-blade tips. 2. Heat both ends of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be mounted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.  5. Check work quality with a magnifier.	Special Soldering tip  Small flat-blade tip type  Thin tip type 	Use care not to damage plastic components when soldering. Position the part carefully. This will also affect the soldering operation. Use care regarding soldering iron tip and avoid rapidly heating parts. For larger parts, use a slightly higher temperature (about 300°C). Check after installing (cold solder joints, etc.). Use care not to damage the circuit pattern, especially when removing.
Chip Resistor Networks						
Chip Tantalum Capacitors						
Chip Tantalum Electrolytic Capacitors						
Chip Aluminum Electrolytic Capacitors						
Chip Transformers						
Chip Filters						

***SMC: Surface Mounted Component**

Products	Appearance	Replacement technology	Removal method	Installation method	Soldering tip types	Cautions
Chip VRs			• **2 soldering irons** 1. Use small flat-blade tips. 2. Heat the leads of the part simultaneously. 3. When the solder melts, grasp and remove the part with the soldering iron tips. 4. Remove the old solder with desoldering wire.	1. Clean the area where the new part is to be moundted (use alcohol). 2. Apply flux. 3. Set part correctly into position, prevent it from shifting. 4. Use sharp soldering iron tip. Bring close to the part contact without actually touching it. Melt thin solder between the tip and part so that it flows into the part contact.	Thin tip type Small flat-blade tip type 	Use care not to damage the part when soldering. Check for solder joints, expecially miniature parts with small leads.
Chip Trimmer Capacitors						
Diodes						
Transistors						
IC (SOP) (Small Outline Package)		 Airblow nozzles FP Pickup Special Tip Desoldering wire Tip Tip Solder Tip IC	• **Special desoldering iron** 1. Select the tip according to the size and shape of the IC. 2. "Tin" the tip with a small amount of solder. 3. Set the tip squarely over the IC leads. 4. When the solder melts, carefully twist the iron. 5. Raise and remove the IC. • **Shaped airblower unit** 1. Select the correct nozzle. 2. Select the temperature and airblow (suggested: temp. 7, airblow 4). 3. Engage the IC removing tool. 4. Use the airblow to preheat the IC for about 5 seconds, then heat with the nozzle until the IC remover lifts the part from the board.	1. Use desoldering wire to remove the previous solder. 2. Clean the location with alcohol. 3. Apply flux. 4. Position the IC and solder two pins at opposite sides. 5. Use a sharp tipped soldering iron and carefully solder each pin. (After gaining experience, a thicker tip can be used for better work efficiency.) 6. Remove any solder bridges with desoldering wire. 7. Inspect the work with a magnifier.	Special soldering tips. Airblow nozzles 	Do not reuse removed parts. Use care to avoid solder bridges. Remove any that occurs. Remove the old IC carefully so as not to damage the circuit pattern. Because of the many pins, cleanliness of the pattern is extremely important after removing the IC. Be very precise in positioning the IC. Soldering opposite pins first holds the IC in place and makes soldering the other pins easier. It is important to inspect the work with a magnifier. ICs (especially TSOP) are easily damaged by heat. Do not touch directly with the soldering iron.
IC (SSOP) (Shrink Small Outline Package)						
IC (VSOP) (Very Small Outline Package)						
IC (QFP) (Quad Flat Package)						
IC (VQFP) (Very Small Quad Flat Package)						
IC (PLCC) (Plastic Leaded Chip Carrier)						
IC (TSOP) (Thin Small Outline Package)						

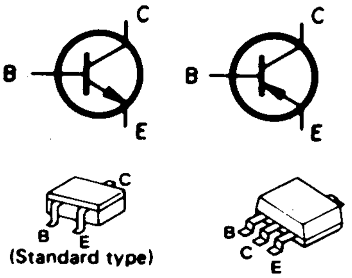
3.2.7 Semiconductors

1. Digital transistor

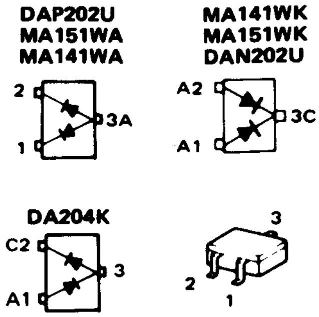


DTA114T
T mark only

2. Chip transistor



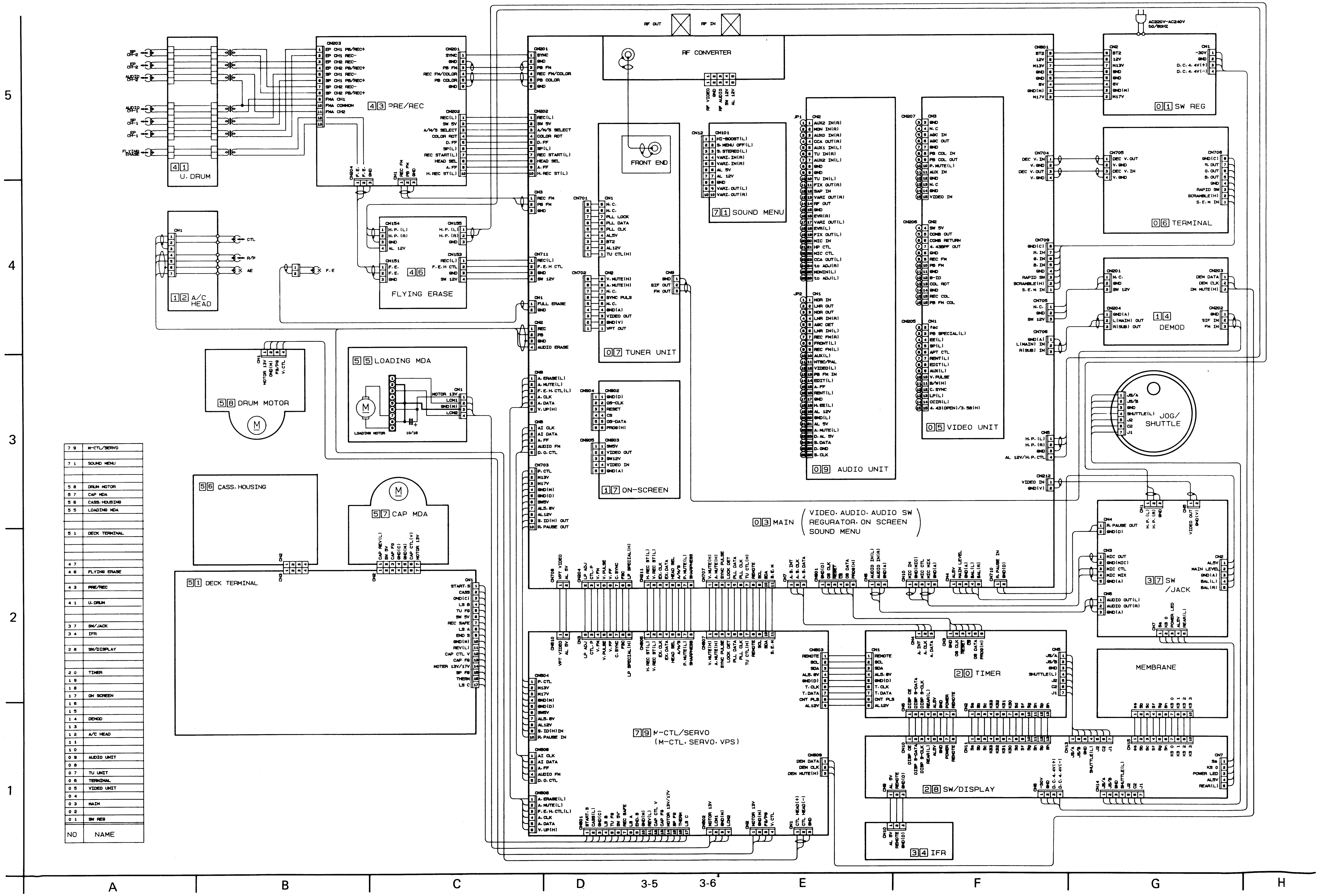
3. Chip diode



Note: The digital transistor includes built in resistors. If features small size and high reliability. Both PNP and NPN types are available.

Uses: Inverter, interface, driver circuits.

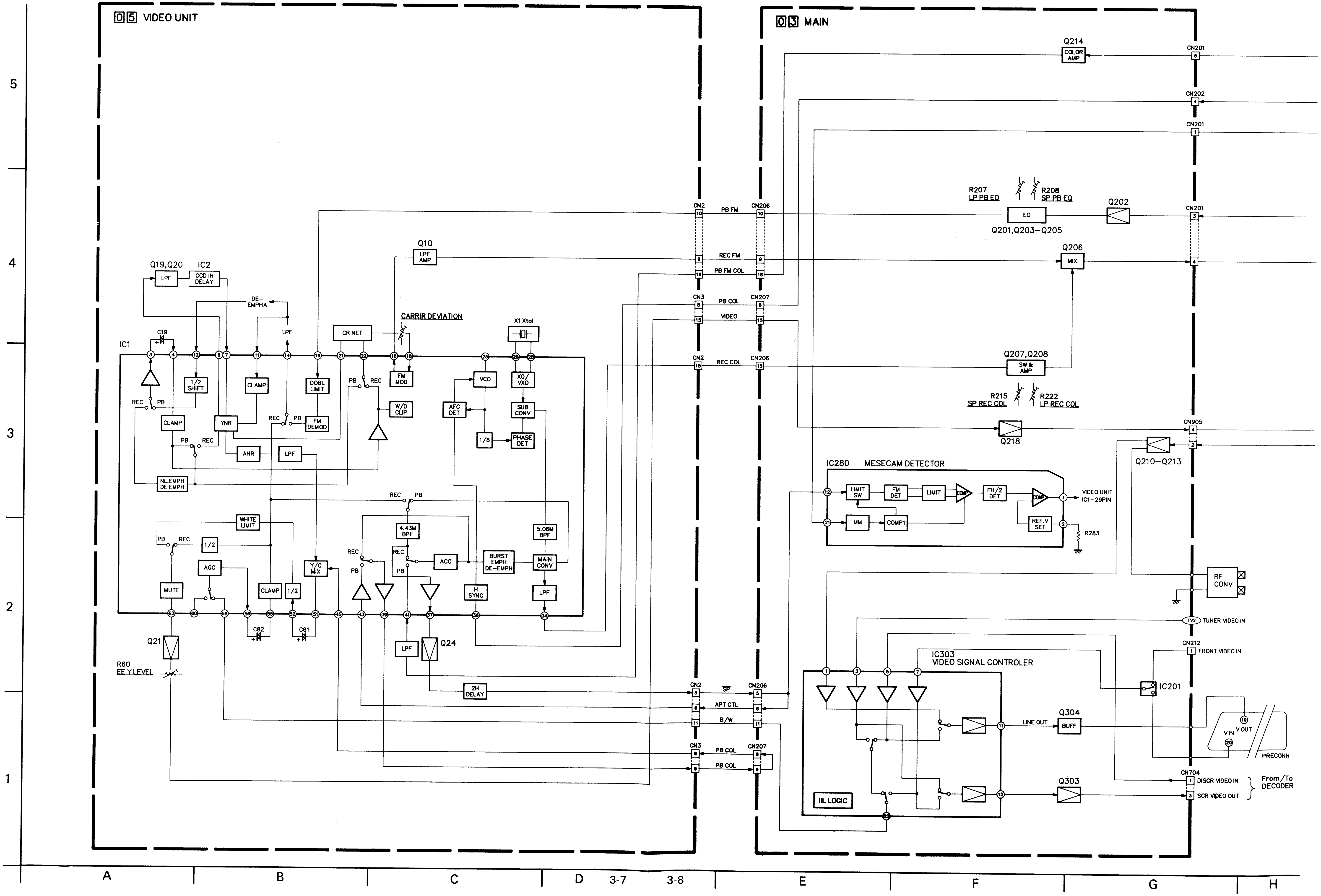
3.3 BOARD INTERCONNECTIONS



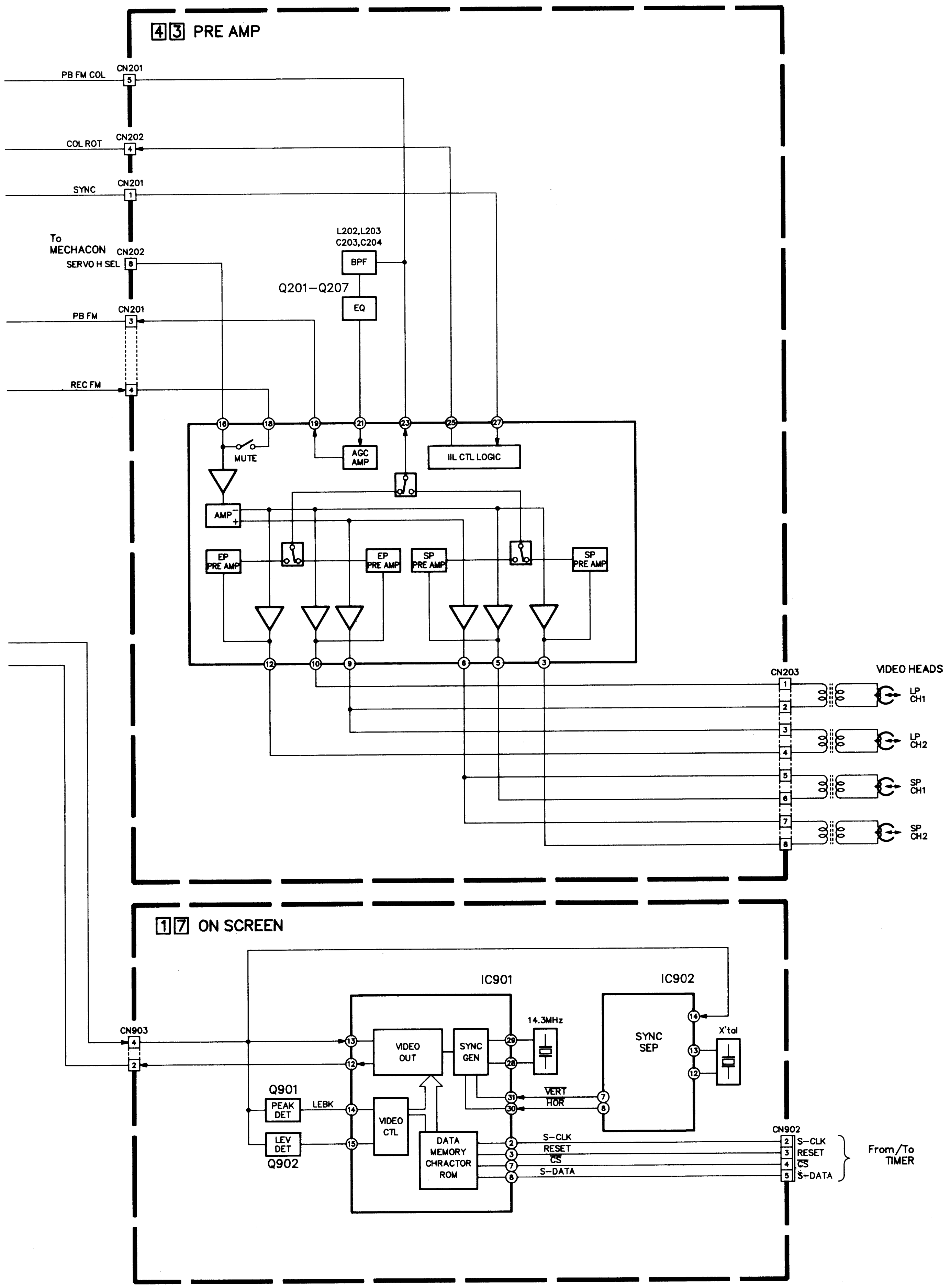
4 1 U. DRUM
1 2 A/C HEAD
4 3 PRE/REC
4 6 FLYING ERASE
5 8 DRUM MOTOR
5 5 LOADING MDA
LOADING MOTOR
5 6 CASS. HOUSING
5 7 CAP MDA
5 1 DECK TERMINAL
RF OUT
RF IN
RF CONVERTER
FRONT END
0 7 TUNER UNIT
7 1 SOUND MENU
0 9 AUDIO UNIT
0 5 VIDEO UNIT
0 1 SW REG
AC220V-AC240V 50/60Hz
0 6 TERMINAL
1 4 DEMOD
JOG/SHUTTLE
1 7 ON-SCREEN
0 3 MAIN (VIDEO, AUDIO, AUDIO SW REGURATOR, ON SCREEN SOUND MENU)
3 7 SW /JACK
MEMBRANE
2 0 TIMER
7 9 M-CTL/SERVO (M-CTL, SERVO, VPS)
2 8 SW/DISPLAY
3 4 IFR
CTL
R/P
AE
F.E
5
4
3
2
1
A
B
C
D
E
F
G
H

NO	NAME
7 9	M-CTL/SERVO
7 1	SOUND MENU
5 8	DRUM MOTOR
5 7	CAP MDA
5 6	CASS. HOUSING
5 5	LOADING MDA
5 1	DECK TERMINAL
4 7	
4 6	FLYING ERASE
4 3	PRE/REC
4 1	U. DRUM
3 7	SW/JACK
3 4	IFR
2 8	SW/DISPLAY
2 0	TIMER
1 9	
1 8	
1 7	ON SCREEN
1 6	
1 5	
1 4	DEMOD
1 3	
1 2	A/C HEAD
1 1	
1 0	
0 9	AUDIO UNIT
0 8	
0 7	TU UNIT
0 6	TERMINAL
0 5	VIDEO UNIT
0 4	
0 3	MAIN
0 2	
0 1	SW REG

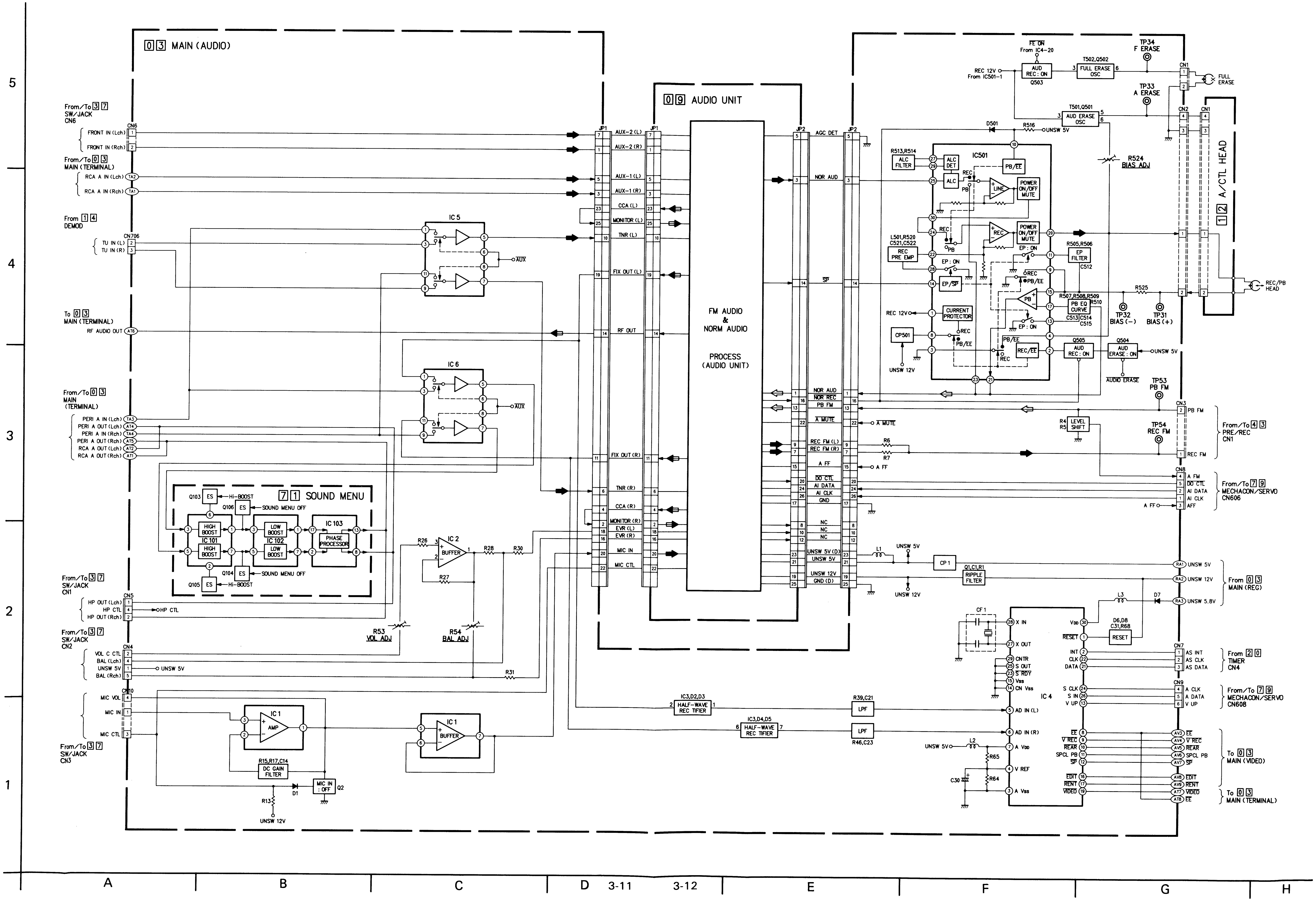
3.4 VIDEO BLOCK DIAGRAM — (1)


05 VIDEO UNIT
03 MAIN
IC1
Q19,Q20
IC2
LPF
CCD IH DELAY
DE-EMPHA
LPF
C19
1/2 SHIFT
CLAMP
YNR
ANR
DOBL LIMIT
FM DEMOD
CR NET
Q10
LPF AMP
CARRIR DEVIATION
FM MOD
W/D CLIP
X1 Xtal
VCO
XO/VXO
AFC DET
SUB CONV
1/8
PHASE DET
NL.EMPH DE EMPH
REC
PB
WHITE LIMIT
1/2
AGC
MUTE
Y/C MIX
4.43M BPF
ACC
BURST EMPH DE-EMPH
H SYNC
5.06M BPF
MAIN CONV
LPF
C82
C61
Q21
R60
EE Y LEVEL
Q24
2H DELAY
CN2
CN3
CN206
CN207
PB FM
REC FM
PB FM COL
PB COL
VIDEO
REC COL
SP
APT CTL
B/W
Q214
COLOR AMP
CN201
CN202
R207 LP PB EQ
R208 SP PB EQ
EQ
Q201,Q203–Q205
Q202
Q206
MIX
Q207,Q208
SW & AMP
R215 SP REC COL
R222 LP REC COL
CN905
Q218
Q210–Q213
IC280 MESECAM DETECTOR
LIMIT SW
FM DET
LIMIT
COMP
FH/2 DET
MM
COMP1
REF.V SET
VIDEO UNIT IC1–29PIN
R283
RF CONV
TV2 TUNER VIDEO IN
CN212
FRONT VIDEO IN
IC303 VIDEO SIGNAL CONTROLER
IIL LOGIC
LINE OUT
Q304
BUFF
IC201
V IN
V OUT
PRECONN
Q303
CN704
DISCR VIDEO IN
SCR VIDEO OUT
From/To DECODER
5
4
3
2
1
A
B
C
D
E
F
G
H

3.5 VIDEO BLOCK DIAGRAM — (2)

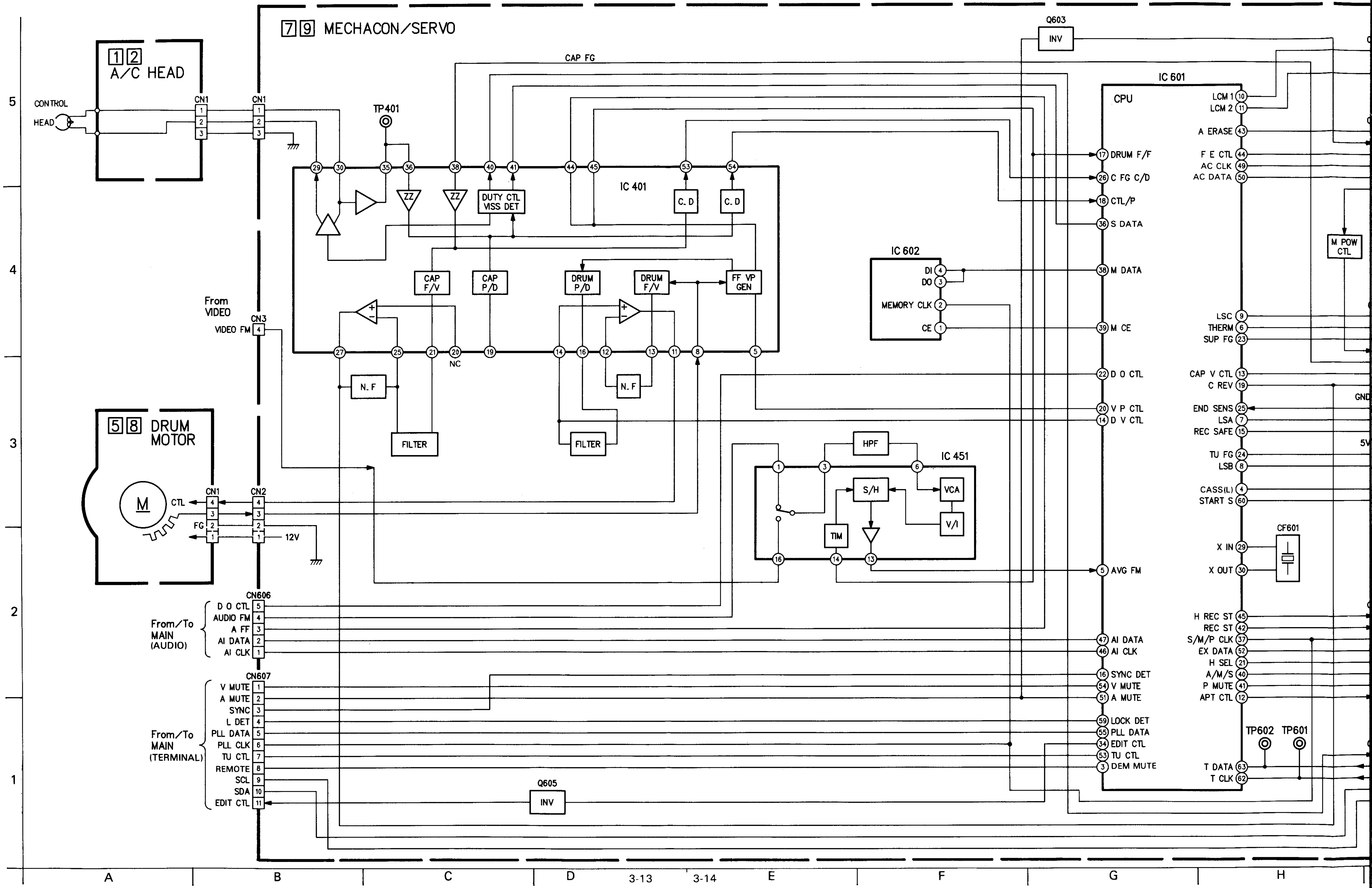

43 PRE AMP
PB FM COL
CN201
5
COL ROT
CN202
4
SYNC
CN201
1
To
MECHACON
CN202
SERVO H SEL
8
PB FM
CN201
3
REC FM
4
L202,L203
C203,C204
BPF
Q201—Q207
EQ
16
18
19
21
23
25
27
MUTE
AGC AMP
IIL CTL LOGIC
AMP
EP PRE AMP
EP PRE AMP
SP PRE AMP
SP PRE AMP
12
10
9
6
5
3
CN203
1
2
3
4
5
6
7
8
VIDEO HEADS
LP CH1
LP CH2
SP CH1
SP CH2
17 ON SCREEN
IC901
IC902
CN903
4
2
13
12
VIDEO OUT
SYNC GEN
29
28
14.3MHz
SYNC SEP
14
13
12
X'tal
Q901
PEAK DET
LEBK
14
VIDEO CTL
31
30
VERT
HOR
7
8
LEV DET
Q902
15
DATA MEMORY CHRACTOR ROM
2
3
7
8
S-CLK
RESET
CS
S-DATA
CN902
2 S-CLK
3 RESET
4 CS
5 S-DATA
From/To TIMER

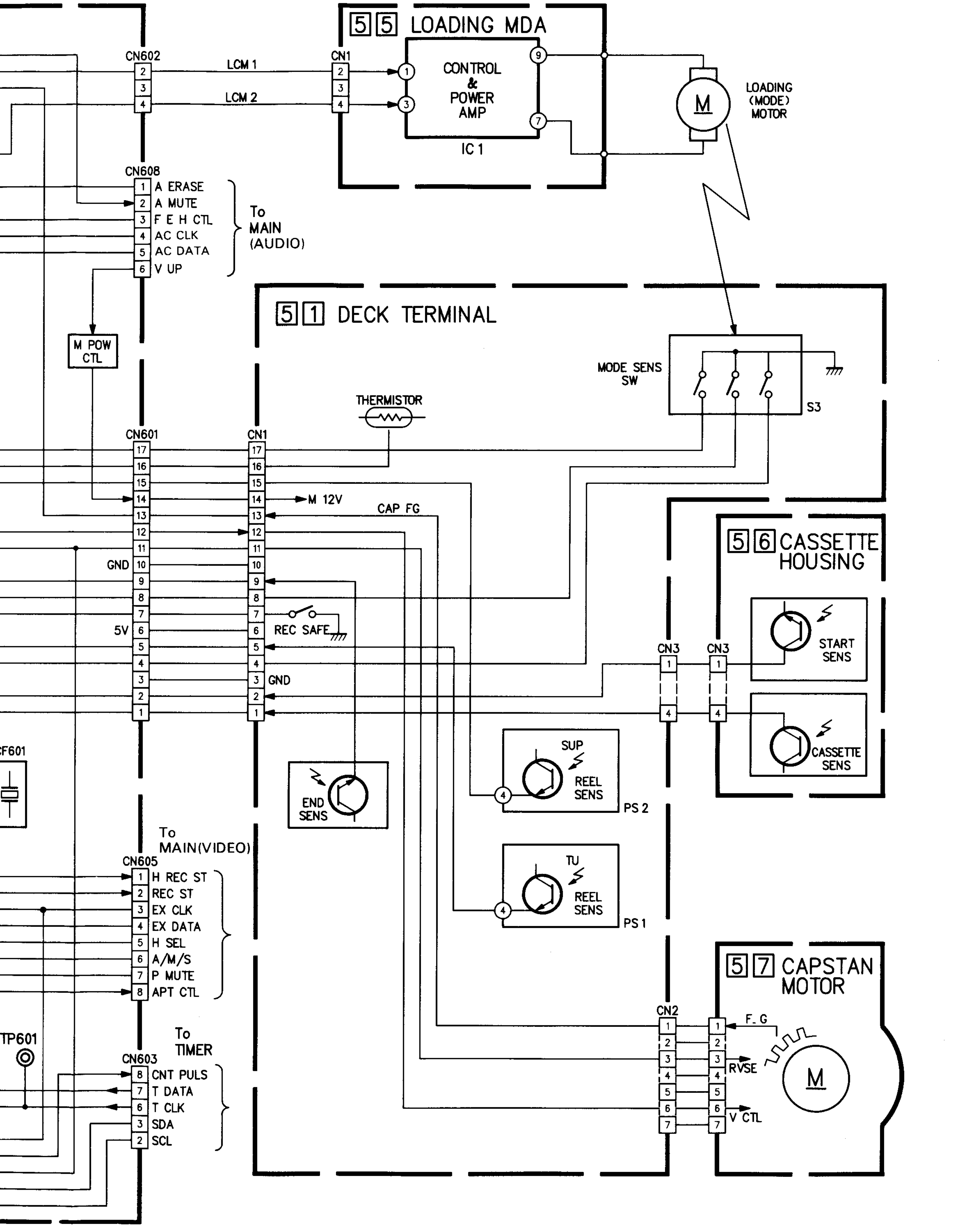
3.6 AUDIO BLOCK DIAGRAM



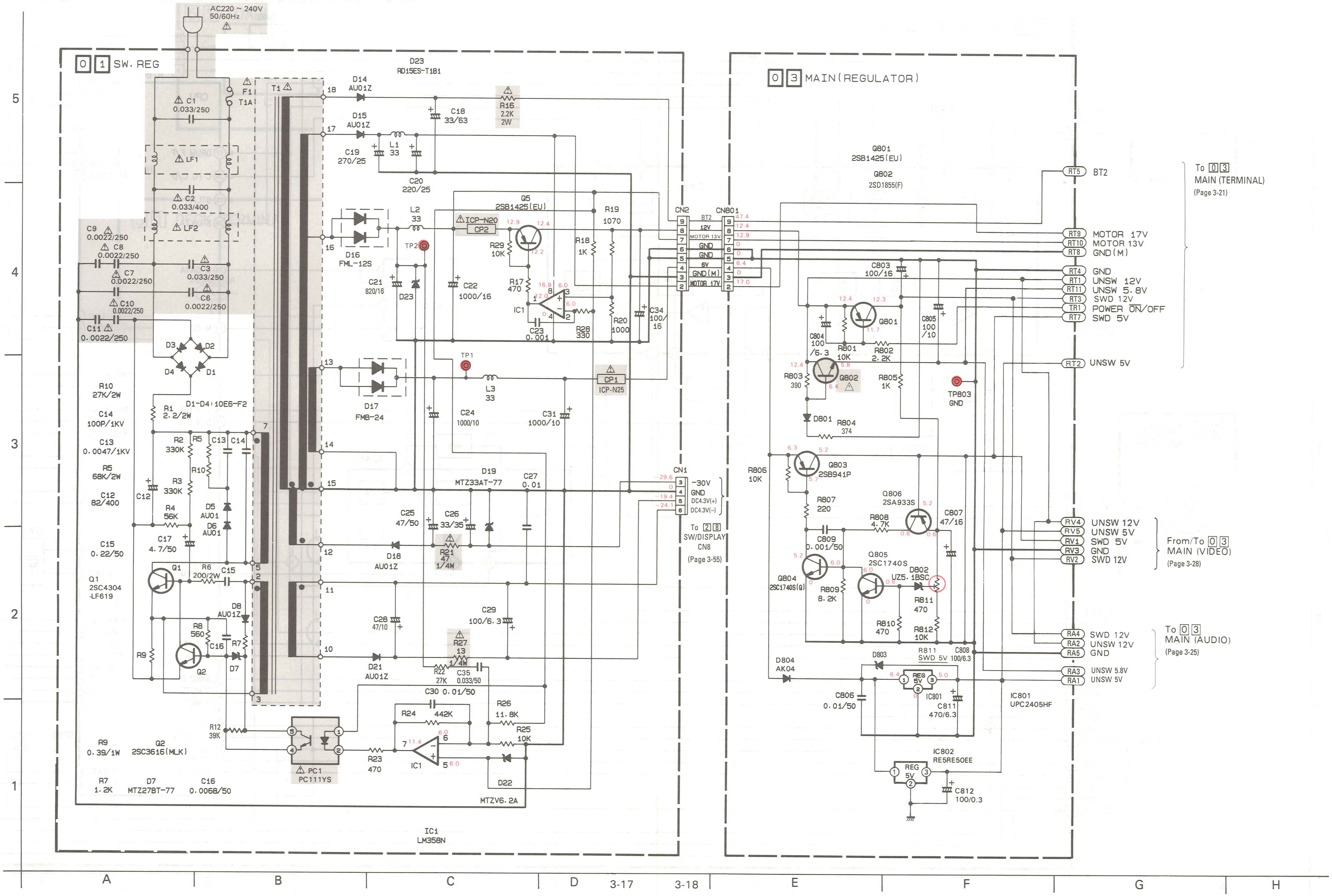
03 MAIN (AUDIO)
09 AUDIO UNIT
FM AUDIO & NORM AUDIO PROCESS (AUDIO UNIT)
12 A/CTL HEAD
71 SOUND MENU
From/To 37 SW/JACK CN6
FRONT IN (Lch)
FRONT IN (Rch)
From/To 03 MAIN (TERMINAL)
RCA A IN (Lch)
RCA A IN (Rch)
From 14 DEMOD
CN706
TU IN (L)
TU IN (R)
To 03 MAIN (TERMINAL)
RF AUDIO OUT
From/To 03 MAIN (TERMINAL)
PERI A IN (Lch)
PERI A OUT (Lch)
PERI A IN (Rch)
PERI A OUT (Rch)
RCA A OUT (Lch)
RCA A OUT (Rch)
From/To 37 SW/JACK CN1
CN5
HP OUT (Lch)
HP CTL
HP OUT (Rch)
From/To 37 SW/JACK CN2
CN4
VOL C CTL
BAL (Lch)
UNSW 5V
BAL (Rch)
CN10
MIC VOL
MIC IN
MIC CTL
From/To 37 SW/JACK CN3
IC5
IC6
AUX
IC 103
PHASE PROCESSOR
IC 101
HIGH BOOST
IC 102
LOW BOOST
Q103 ES Hi-BOOST
Q106 ES SOUND MENU OFF
Q104 ES SOUND MENU OFF
Q105 ES Hi-BOOST
IC 2 BUFFER
R26
R27
R28
R30
R31
R53 VOL ADJ
R54 BAL ADJ
IC 1 AMP
IC 1 BUFFER
R15,R17,C14 DC GAIN FILTER
MIC IN : OFF
Q2
D1
R13
UNSW 12V
JP1
AUX-2 (L)
AUX-2 (R)
AUX-1 (L)
AUX-1 (R)
CCA (L)
MONITOR (L)
TNR (L)
FIX OUT (L)
RF OUT
FIX OUT (R)
TNR (R)
CCA (R)
MONITOR (R)
EVR (L)
EVR (R)
MIC IN
MIC CTL
JP2
AGC DET
NOR AUD
SP
NOR AUD
NOR REC
PB FM
A MUTE
REC FM (L)
REC FM (R)
A FF
DD CTL
AI DATA
AI CLK
GND
NC
UNSW 5V (D)
UNSW 5V
UNSW 12V
GND (D)
IC501
R513,R514 ALC FILTER
ALC DET
ALC
PB/EE
LINE
POWER ON/OFF MUTE
REC
L501,R520 C521,C522 REC PRE EMP
EP : ON
EP/SP
REC 12V
CURRENT PROTECTOR
CP501
R505,R506 EP FILTER
C512
R507,R508,R509 PB EQ CURVE
R510
C513 C514 C515
PB/EE
REC/EE
Q505 AUD REC : ON
Q504 AUD ERASE : ON
AUDIO ERASE
FE ON From IC4-20
REC 12V From IC501-1
AUD REC : ON
Q503
T502,Q502 FULL ERASE OSC
T501,Q501 AUD ERASE OSC
D501
R516
UNSW 5V
R524 BIAS ADJ
R525
TP34 F ERASE
TP33 A ERASE
TP32 BIAS (−)
TP31 BIAS (+)
TP53 PB FM
TP54 REC FM
CN1
CN2
FULL ERASE
REC/PB HEAD
CN3
PB FM
REC FM
From/To 43 PRE/REC CN1
R4 R5 LEVEL SHIFT
R6
R7
CN8
A FM
DD CNTL
AI DATA
AI CLK
A FF
From/To 79 MECHACON/SERVO CN606
L1
UNSW 5V
UNSW 12V
CP 1
Q1,C1,R1 RIPPLE FILTER
UNSW 5V
UNSW 12V
UNSW 5.8V
From 03 MAIN (REG)
L3
D7
CF 1
X IN
X OUT
CNTR
S OUT
S RDY
Vss
CN Vss
IC 4
AD IN (L)
AD IN (R)
A VDD
V REF
A Vss
VDD
RESET
D6,D8 C31,R68 RESET
INT
CLK
DATA
CN7
AS INT
AS CLK
AS DATA
From 20 TIMER CN4
S CLK
S IN
V UP
CN9
A CLK
A DATA
V UP
From/To 79 MECHACON/SERVO CN608
IC3,D2,D3 HALF-WAVE REC TIFIER
IC3,D4,D5 HALF-WAVE REC TIFIER
R39,C21 LPF
R46,C23 LPF
L2
R65
R64
C30
EE
V REC
REAR
SPCL PB
SP
EDIT
RENT
VIDEO
To 03 MAIN (VIDEO)
To 03 MAIN (TERMINAL)
1
2
3
4
5
A
B
C
D
E
F
G
H

3.7 MECHACON/SERVO BLOCK DIAGRAM

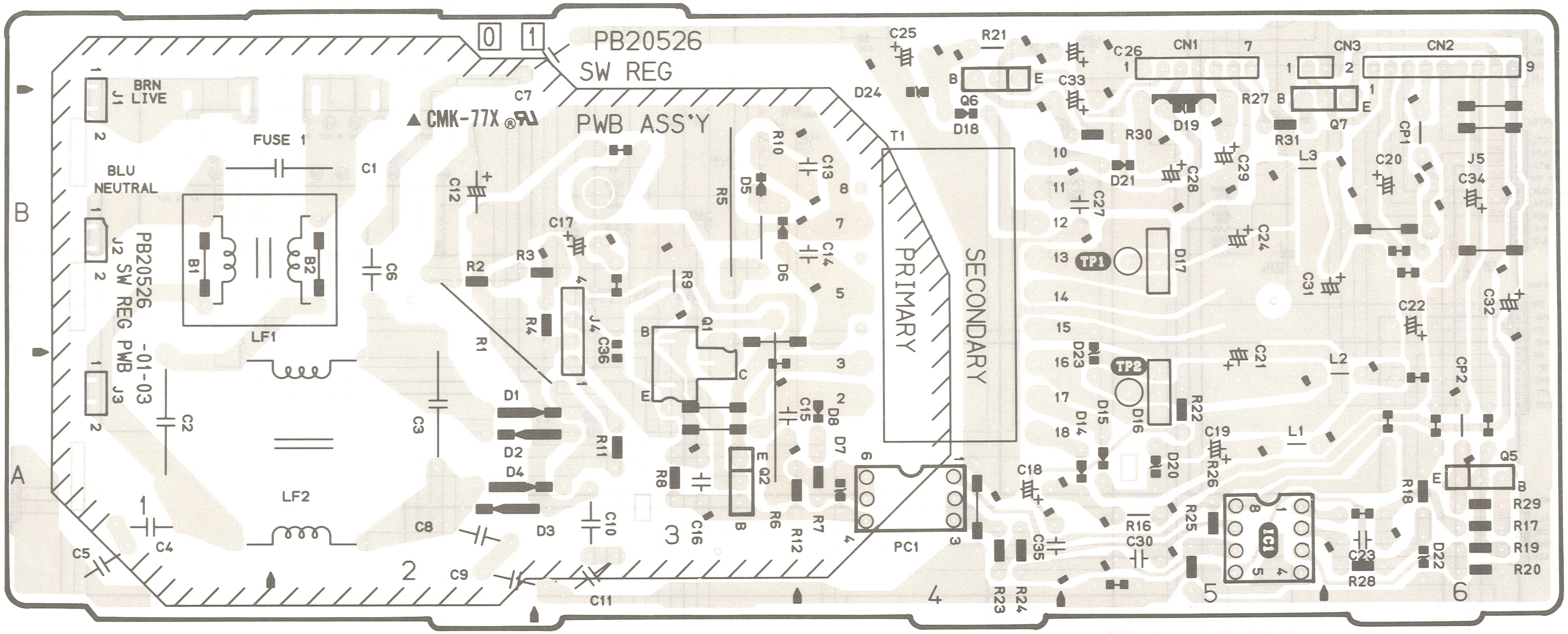

1 2 A/C HEAD
CONTROL HEAD
CN1
7 9 MECHACON/SERVO
CAP FG
TP401
IC 401
DUTY CTL VISS DET
ZZ
C. D
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
N. F
FILTER
NC
From VIDEO
CN3
VIDEO FM
5 8 DRUM MOTOR
M
CTL
FG
CN2
12V
IC 451
HPF
S/H
VCA
V/I
TIM
IC 602
DI
DO
MEMORY CLK
CE
Q603
INV
IC 601
CPU
DRUM F/F
C FG C/D
CTL/P
S DATA
M DATA
M CE
D O CTL
V P CTL
D V CTL
AVG FM
AI DATA
AI CLK
SYNC DET
V MUTE
A MUTE
LOCK DET
PLL DATA
EDIT CTL
TU CTL
DEM MUTE
LCM 1
LCM 2
A ERASE
F E CTL
AC CLK
AC DATA
LSC
THERM
SUP FG
CAP V CTL
C REV
END SENS
LSA
REC SAFE
TU FG
LSB
CASS(L)
START S
X IN
X OUT
CF601
H REC ST
REC ST
S/M/P CLK
EX DATA
H SEL
A/M/S
P MUTE
APT CTL
T DATA
T CLK
TP602
TP601
M POW CTL
GND
5V
CN606
From/To MAIN (AUDIO)
D O CTL
AUDIO FM
A FF
AI DATA
AI CLK
CN607
From/To MAIN (TERMINAL)
V MUTE
A MUTE
SYNC
L DET
PLL DATA
PLL CLK
TU CTL
REMOTE
SCL
SDA
EDIT CTL
Q605
INV
A
B
C
D
E
F
G
H
1
2
3
4
5


5 5 LOADING MDA
CONTROL & POWER AMP
IC 1
LOADING (MODE) MOTOR
M
CN602
LCM 1
LCM 2
CN1
CN608
1 A ERASE
2 A MUTE
3 F E H CTL
4 AC CLK
5 AC DATA
6 V UP
To MAIN (AUDIO)
M POW CTL
5 1 DECK TERMINAL
MODE SENS SW
S3
THERMISTOR
CN601
M 12V
CAP FG
GND
5V
REC SAFE
GND
5 6 CASSETTE HOUSING
START SENS
CASSETTE SENS
CN3
SUP REEL SENS
PS 2
TU REEL SENS
PS 1
END SENS
CF601
To MAIN(VIDEO)
CN605
1 H REC ST
2 REC ST
3 EX CLK
4 EX DATA
5 H SEL
6 A/M/S
7 P MUTE
8 APT CTL
TP601
To TIMER
CN603
8 CNT PULS
7 T DATA
6 T CLK
3 SDA
2 SCL
5 7 CAPSTAN MOTOR
CN2
F. G
RVSE
V CTL
H
I
J
K
L

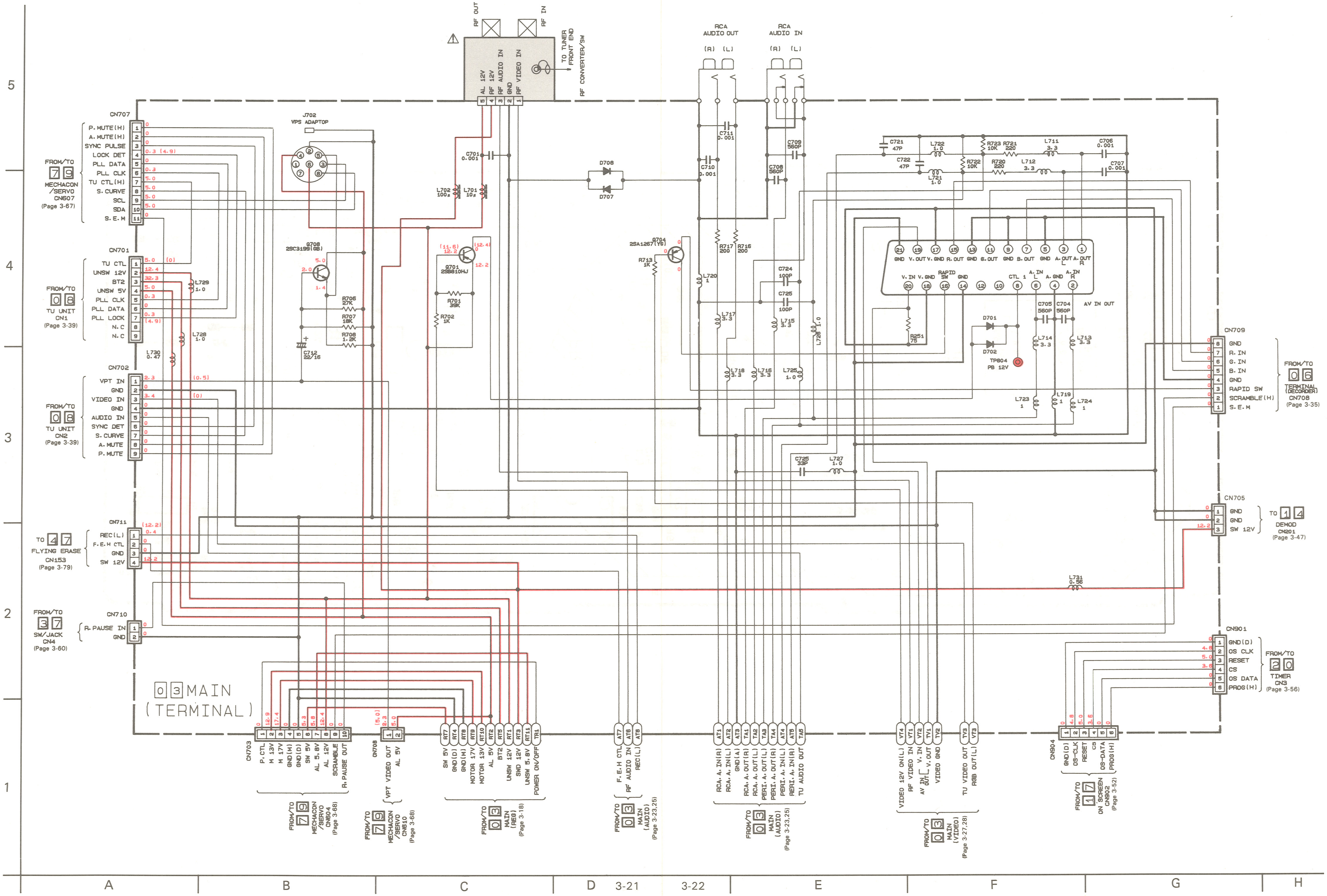
3.8 SWITCHING REGULATOR & MAIN (REGULATOR) SCHEMATIC DIAGRAMS


AC220 ~ 240V
50/60Hz
01 SW. REG
03 MAIN (REGULATOR)
F1 T1A
C1 0.033/250
LF1
C2 0.033/400
LF2
C9 0.0022/250
C8 0.0022/250
C7 0.0022/250
C3 0.033/250
C6 0.0022/250
C10 0.0022/250
C11 0.0022/250
D3 D2 D4 D1
D1-D4: 10E6-F2
R10 27K/2W
C14 100P/1KV
C13 0.0047/1KV
R5 68K/2W
C12 82/400
C15 0.22/50
Q1 2SC4304 -LF619
R9 0.39/1W
Q2 2SC3616(MLK)
R7 1.2K
D7 MTZ27BT-77
C16 0.0068/50
R1 2.2/2W
R2 330K
R3 330K
R4 56K
R6 200/2W
R8 560
R12 39K
C17 4.7/50
D5 AU01
D6 AU01
D8 AU01Z
T1
D23 RD15ES-T1B1
D14 AU01Z
D15 AU01Z
C18 33/63
R16 2.2K 2W
L1 33
C19 270/25
C20 220/25
L2 33
D16 FML-12S
C21 820/16
TP2
ICP-N20 CP2
Q5 2SB1425(EU)
R29 10K
C22 1000/16
R17 470
IC1
C23 0.001
R28 330
R18 1K
R19 1070
R20 1000
C34 100/16
D17 FMB-24
TP1
L3 33
CP1 ICP-N25
C24 1000/10
C31 1000/10
D19 MTZ33AT-77
C27 0.01
C25 47/50
C26 33/35
D18 AU01Z
R21 47 1/4W
C28 47/10
C29 100/6.3
D21 AU01Z
R27 13 1/4W
R22 27K
C35 0.033/50
C30 0.01/50
R24 442K
R26 11.8K
R25 10K
R23 470
PC1 PC111YS
D22 MTZV6.2A
IC1 LM358N
CN2
CN801
BT2
12V
MOTOR 13V
GND
5V
GND(M)
MOTOR 17V
CN1
-30V
GND
DC4.3V(+)
DC4.3V(-)
To 28 SW/DISPLAY CN8 (Page 3-55)
Q801 2SB1425(EU)
Q802 2SD1855(F)
C803 100/16
C804 100/6.3
R801 10K
R802 2.2K
C805 100/10
R803 390
R805 1K
TP803 GND
D801
R804 374
R806 10K
Q803 2SB941P
R807 220
Q806 2SA933S
R808 4.7K
C807 47/16
C809 0.001/50
Q804 2SC1740S(Q)
Q805 2SC1740S
D802 UZ5.1BSC
R809 8.2K
R811 470
R810 470
R812 10K
D804 AK04
D803
R811 SWD 5V
C808 100/6.3
C806 0.01/50
IC801
C811 470/6.3
IC801 UPC2405HF
IC802 RE5RE50EE
REG 5V
C812 100/0.3
RT5 BT2
RT9 MOTOR 17V
RT10 MOTOR 13V
RT8 GND(M)
RT4 GND
RT1 UNSW 12V
RT11 UNSW 5.8V
RT3 SWD 12V
TR1 POWER ON/OFF
RT7 SWD 5V
RT2 UNSW 5V
To 03 MAIN (TERMINAL) (Page 3-21)
RV4 UNSW 12V
RV5 UNSW 5V
RV1 SWD 5V
RV3 GND
RV2 SWD 12V
From/To 03 MAIN (VIDEO) (Page 3-28)
RA4 SWD 12V
RA2 UNSW 12V
RA5 GND
RA3 UNSW 5.8V
RA1 UNSW 5V
To 03 MAIN (AUDIO) (Page 3-25)
A B C D E F G H
1 2 3 4 5

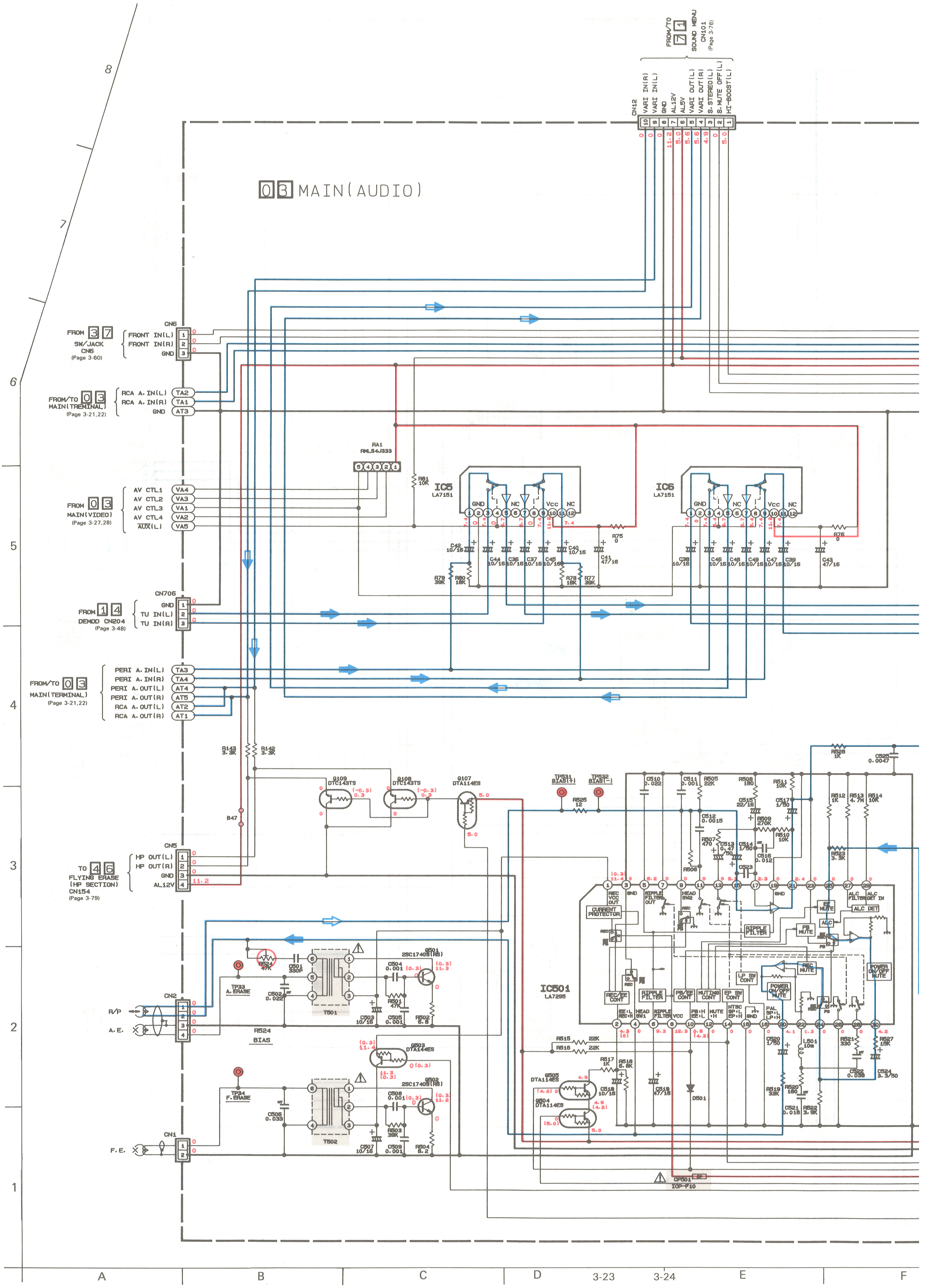
3.9 SWITCHING REGULATOR CIRCUIT BOARD


0
1
PB20526
SW REG
▲CMK-77X
PWB ASS'Y
J1
BRN
LIVE
BLU
NEUTRAL
J2
J3
FUSE 1
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C17
C18
C19
C20
C21
C22
C23
C24
C25
C26
C27
C28
C29
C30
C31
C32
C33
C34
C35
C36
B1
B2
LF1
LF2
PB20526 -01-03
J2 SW REG PWB
D1
D2
D3
D4
D5
D6
D7
D8
D14
D15
D16
D17
D18
D19
D20
D21
D22
D23
D24
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R16
R17
R18
R19
R20
R21
R22
R23
R24
R25
R26
R27
R28
R29
R30
R31
Q1
Q2
Q5
Q6
Q7
J4
J5
T1
PRIMARY
SECONDARY
PC1
IC1
TP1
TP2
L1
L2
L3
CN1
CN2
CN3
CP1
CP2
A
B
2
3
4
5
6

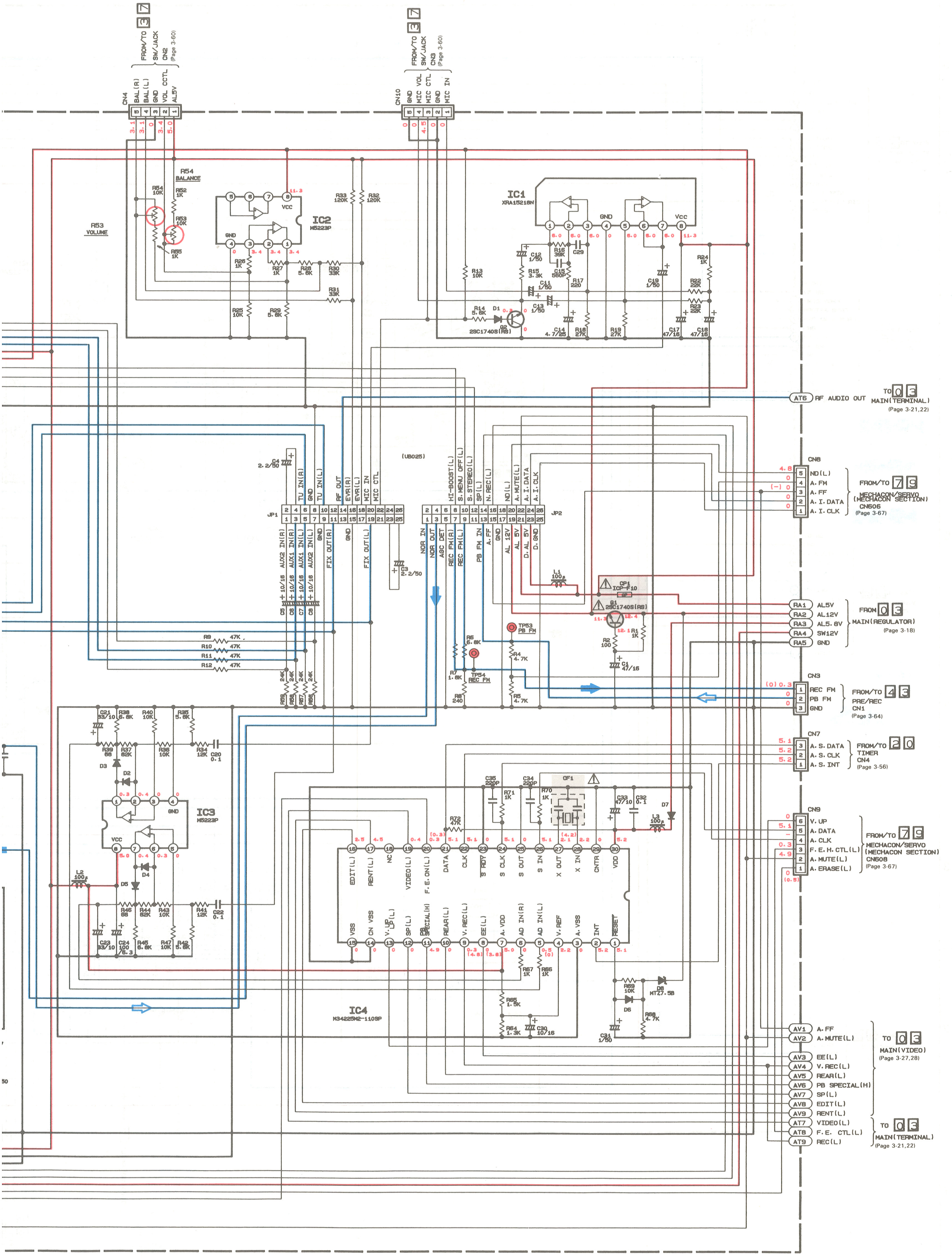
3.10 TERMINAL SCHEMATIC DIAGRAM


03 MAIN (TERMINAL)
RF OUT
RF IN
AL 12V
RF 12V
RF AUDIO IN
GND
RF VIDEO IN
TO TUNER FRONT END
RF CONVERTER/SW
RCA AUDIO OUT (R) (L)
RCA AUDIO IN (R) (L)
CN707
P.MUTE(H)
A.MUTE(H)
SYNC PULSE
LOCK DET
PLL DATA
PLL CLK
TU CTL(H)
S.CURVE
SCL
SDA
S.E.M
FROM/TO 79 MECHACON /SERVO CN607 (Page 3-67)
CN701
TU CTL
UNSW 12V
BT2
UNSW 5V
PLL CLK
PLL DATA
PLL LOCK
N.C
FROM/TO 08 TU UNIT CN1 (Page 3-39)
CN702
VPT IN
VIDEO IN
AUDIO IN
SYNC DET
S.CURVE
A.MUTE
P.MUTE
FROM/TO 08 TU UNIT CN2 (Page 3-39)
CN711
REC(L)
F.E.H CTL
SW 12V
TO 47 FLYING ERASE CN153 (Page 3-79)
CN710
R.PAUSE IN
FROM/TO 37 SW/JACK CN4 (Page 3-60)
J702 VPS ADAPTOR
Q708 2SC3199(GR)
Q701 2SB810HJ
Q704 2SA1267(Y6)
D706
D707
D701
D702
TP804 PB 12V
L702 100μ
L701 10μ
C701 0.001
L729 1.0
L728 1.0
L730 0.47
C712 22/16
R706 27K
R707 18K
R708 1.2K
R701 39K
R702 1K
R713 1K
R717 200
R716 200
C711 0.001
C710 0.001
C709 560P
C708 560P
C724 100P
C725 100P
L720 1
L717 3.3
L715 3.3
L726 1.0
L718 3.3
L716 3.3
L725 1.0
C726 33P
L727 1.0
C721 47P
C722 47P
L722 1.0
L721 1.0
R723 10K
R722 10K
R721 220
R720 220
L711 3.3
L712 3.3
C706 0.001
C707 0.001
R251 75
C705 560P
C704 560P
L714 3.3
L713 3.3
L719 1
L723 1
L724 1
L731 0.56
AV IN OUT
GND V.OUT V.GND R.OUT GND G.OUT GND B.OUT GND A.OUT L A.OUT R
V.IN V.GND RAPID SW GND CTL 1 A.IN L A.GND A.IN R
CN709
GND
R.IN
G.IN
B.IN
GND
RAPID SW
SCRAMBLE(H)
S.E.M
FROM/TO 06 TERMINAL (DECODER) CN708 (Page 3-35)
CN705
GND
GND
SW 12V
TO 14 DEMOD CN201 (Page 3-47)
CN901
GND(D)
OS CLK
RESET
CS
OS DATA
PROG(H)
FROM/TO 20 TIMER CN3 (Page 3-56)
CN703
P.CTL
M 13V
M 17V
GND(M)
GND(D)
SW 5V
AL 5.8V
AL 12V
SCRAMBLE
R.PAUSE OUT
FROM/TO 79 MECHACON /SERVO CN604 (Page 3-68)
CN708
VPT VIDEO OUT
AL 5V
FROM/TO 79 MECHACON /SERVO CN510 (Page 3-68)
SW 5V
GND(D)
GND(M)
MOTOR 17V
MOTOR 13V
AL 5V
BT2
UNSW 12V
SWD 12V
UNSW 5.8V
POWER ON/OFF
FROM/TO 03 MAIN (REG) (Page 3-18)
F.E.H CTL
RF AUDIO IN
REC(L)
FROM/TO 03 MAIN (AUDIO) (Page 3-23,25)
RCA A.IN(R)
RCA A.IN(L)
GND(A)
RCA A.OUT(R)
RCA A.OUT(L)
PERI.A.OUT(R)
PERI.A.OUT(L)
PERI.A.IN(L)
PERI.A.IN(R)
TU AUDIO OUT
FROM/TO 03 MAIN (AUDIO) (Page 3-23,25)
VIDEO 12V ON(L)
RF VIDEO IN
AV IN/OUT
V.IN
V.OUT
VIDEO GND
TU VIDEO OUT
RGB OUT(L)
FROM/TO 03 MAIN (VIDEO) (Page 3-27,28)
CN904
GND(D)
OS-CLK
RESET
CS
OS-DATA
PROG(H)
FROM/TO 17 ON SCREEN CN902 (Page 3-52)
A
B
C
D
E
F
G
H
1
2
3
4
5

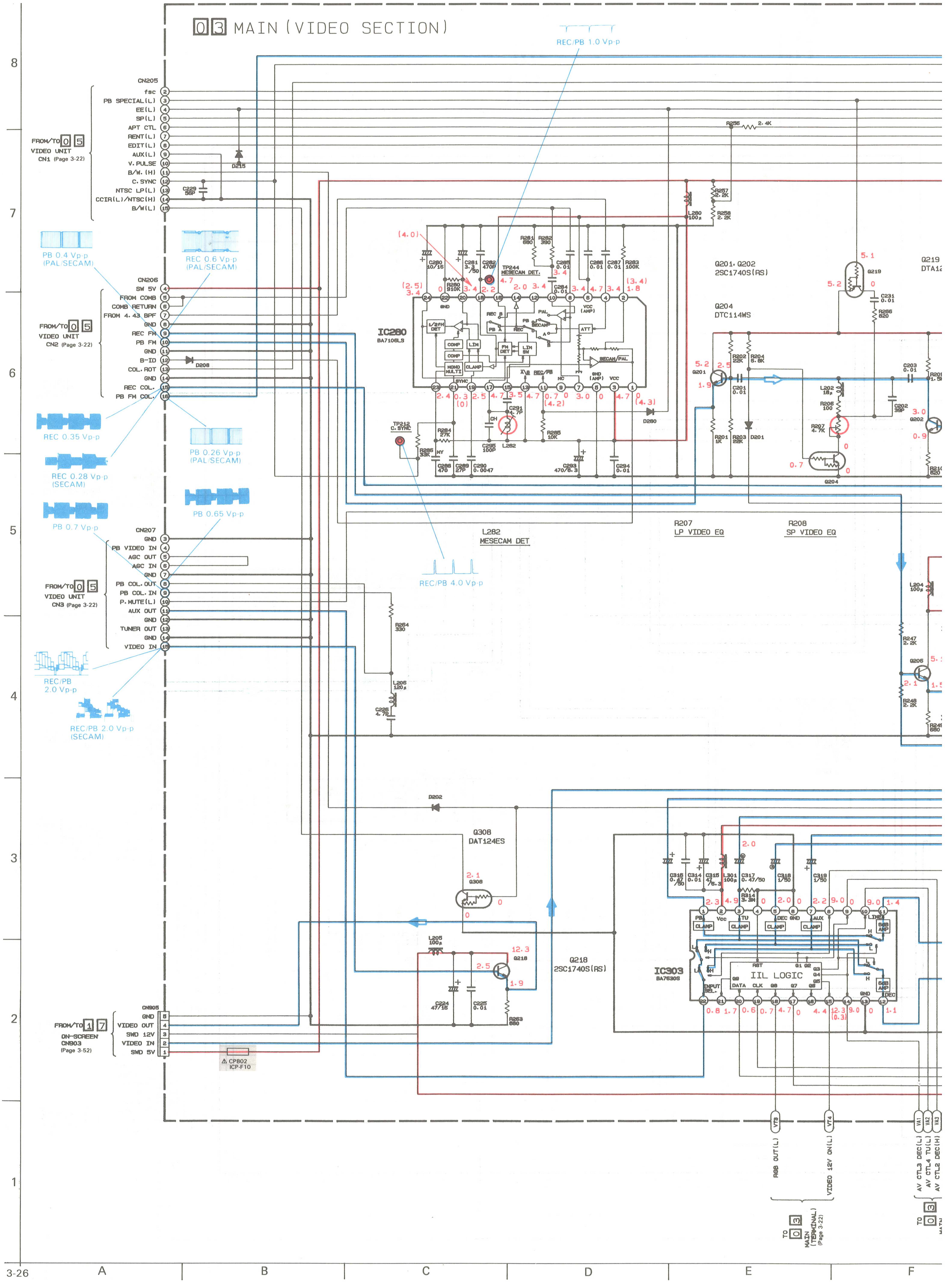
3.11 AUDIO SCHEMATIC DIAGRAM



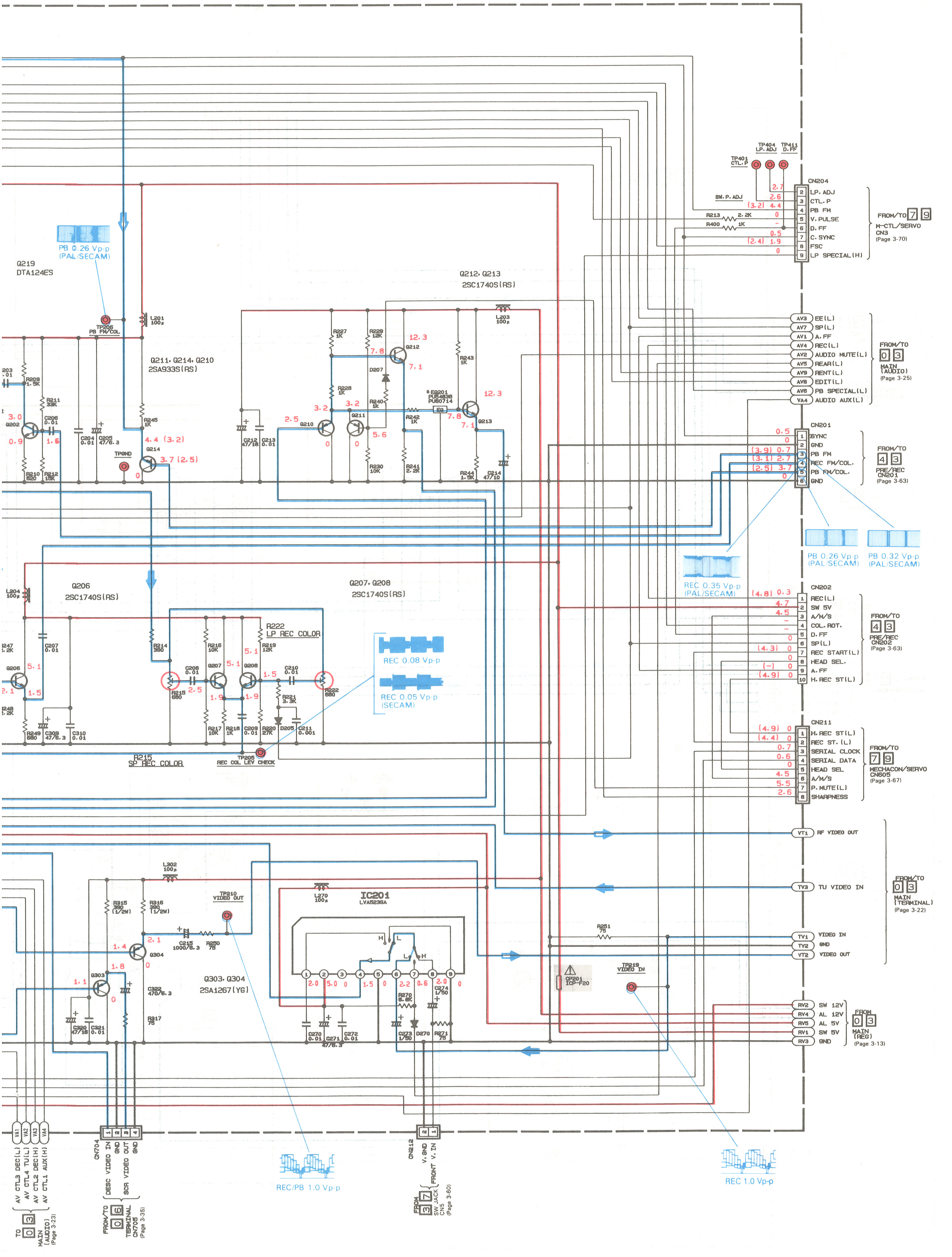
03 MAIN(AUDIO)
FROM/TO 71 SOUND MENU CN101 (Page 3-76)
CN12
VARI IN(R)
VARI IN(L)
GND
AL12V
AL5V
VARI OUT(L)
VARI OUT(R)
S.STEREO(L)
S.MUTE OFF(L)
HI-BOOST(L)
FROM 37 SW/JACK CN6 (Page 3-60)
CN6
FRONT IN(L)
FRONT IN(R)
GND
FROM/TO 03 MAIN(TREMINAL) (Page 3-21,22)
RCA A.IN(L) TA2
RCA A.IN(R) TA1
GND AT3
FROM 03 MAIN(VIDEO) (Page 3-27,28)
AV CTL1 VA4
AV CTL2 VA3
AV CTL3 VA1
AV CTL4 VA2
AUX(L) VA5
RA1 RML34J333
R81 10K
IC5 LA7151
IC6 LA7151
GND
NC
Vcc
R75 0
R76 0
C42 10/16
C44 10/16
C36 10/16
C37 10/16
C45 10/16
C40 10/16
C41 47/16
R79 39K
R80 18K
R78 18K
R77 39K
C38 10/16
C46 10/16
C48 10/16
C49 10/16
C47 10/16
C39 10/16
C43 47/16
FROM 14 DEMOD CN204 (Page 3-48)
CN706
GND
TU IN(L)
TU IN(R)
FROM/TO 03 MAIN(TERMINAL) (Page 3-21,22)
PERI A.IN(L) TA3
PERI A.IN(R) TA4
PERI A.OUT(L) AT4
PERI A.OUT(R) AT5
RCA A.OUT(L) AT2
RCA A.OUT(R) AT1
R143 3.3K
R142 3.3K
B47
Q109 DTC143TS
Q108 DTC143TS
Q107 DTA114ES
TP531 BIAS(+)
TP532 BIAS(-)
R525 12
TO 46 FLYING ERASE (HP SECTION) CN154 (Page 3-79)
CN5
HP OUT(L)
HP OUT(R)
GND
AL12V
C510 0.022
C511 0.001
R505 22K
R508 180
R511 10K
C515 22/16
C517 1/50
C512 0.0015
R509 270K
R507 470
C513 0.47/50
C514 1/50
R510 10K
C516 0.012
R506
C523
R526 1K
C525 0.0047
R512 1K
R513 4.7M
R514 10K
R523 3.3K
IC501 LA7295
REC VCC OUT
GND
RIPPLE FILTER OUT
HEAD SW2
CURRENT PROTECTOR
RIPPLE FILTER
PB MUTE
EE MUTE
ALC FILTER
ALC DET IN
ALC DET
ALC
REC MUTE
POWER ON/OFF MUTE
REC/EE CONT
RIPPLE FILTER
PB/EE CONT
MUTING CONT
EP SW CONT
LP SW CONT
EE:L REC:H
HEAD SW1
RIPPLE FILTER
VCC
PB:H EE:L
MUTE :H
NTSC SP:L EP:H
GND
PAL SP:L LP:H
CN2
R/P
A.E.
TP33 A.ERASE
R524 47K
C501 330P
T501
Q501 2SC1740S(RS)
C504 0.001
C502 0.022
R501 47K
C503 10/16
C505 0.001
R502 6.8
R524 BIAS
Q503 DTA144ES
TP34 F.ERASE
C506 0.033
T502
Q502 2SC1740S(RS)
C508 0.001
R503 39K
C507 10/16
C509 0.001
R504 8.2
CN1
F.E.
R515 22K
R516 22K
R517 1K
R518 6.8K
Q505 DTA114ES
Q504 DTA114ES
C518 10/16
C519 47/16
D501
C520 1/50
L501 10m
R521 330
R527 15K
R519 33K
R520 180
C521 0.018
R522 3.9K
C522 0.039
C524 3.3/50
CP501 ICP-F10
A
B
C
D
E
F
1
2
3
4
5
6
7
8


FROM/TO 3 7 SW/JACK CN2 (Page 3-60)
CN4
BAL(R)
BAL(L)
GND
VOL CCTL
AL5V
FROM/TO 3 7 SW/JACK CN3 (Page 3-60)
CN10
GND
MIC VOL
MIC CTL
GND
MIC IN
R54 BALANCE
R53 VOLUME
IC2 M5223P
IC1 XRA15216N
VCC
GND
Vcc
R33 120K
R32 120K
R13 10K
R14 5.6K
D1
Q2 2SC1740S(RS)
JP1
JP2
(UB025)
C4 2.2/50
C3 2.2/50
TU IN(R)
GND
TU IN(L)
RF OUT
EVR(R)
EVR(L)
MIC IN
MIC CTL
AUX2 IN(R)
AUX1 IN(R)
AUX1 IN(L)
AUX2 IN(L)
GND
FIX OUT(R)
GND
FIX OUT(L)
HI-BOOST(L)
S.MENU OFF(L)
S.STEREO(L)
SP(L)
N.REC(L)
ND(L)
A.MUTE(L)
A.I.DATA
A.I.CLK
NOR IN
NOR OUT
AGC DET
REC FM(R)
REC FM(L)
PB FM IN
A.FF
GND
AL 12V
AL 5V
D.AL 5V
D.GND
R9 47K
R10 47K
R11 47K
R12 47K
AT6 RF AUDIO OUT
TO 0 3 MAIN(TERMINAL) (Page 3-21,22)
CN8
ND(L)
A.FM
A.FF
A.I.DATA
A.I.CLK
FROM/TO 7 9 MECHACON/SERVO (MECHACON SECTION) CN606 (Page 3-67)
L1 100μ
CP1 ICP-F10
Q1 2SC1740S(RS)
RA1 AL5V
RA2 AL12V
RA3 AL5.6V
RA4 SW12V
RA5 GND
FROM 0 3 MAIN(REGULATOR) (Page 3-18)
TP53 PB FM
TP54 REC FM
CN3
REC FM
PB FM
GND
FROM/TO 4 3 PRE/REC CN1 (Page 3-64)
CN7
A.S.DATA
A.S.CLK
A.S.INT
FROM/TO 2 0 TIMER CN4 (Page 3-56)
IC3 M5223P
CF1
CN9
V.UP
A.DATA
A.CLK
F.E.H.CTL(L)
A.MUTE(L)
A.ERASE(L)
FROM/TO 7 9 MECHACON/SERVO (MECHACON SECTION) CN608 (Page 3-67)
EDIT(L)
RENT(L)
NC
VIDEO(L)
F.E.ON(L)
DATA
CLK
S RDY
S CLK
S OUT
S IN
X OUT
X IN
CNTR
VDD
VSS
CN VSS
V.UP
SP(L)
PB SPECIAL(H)
REAR(L)
V.REC(L)
EE(L)
A.VDD
AD IN(R)
AD IN(L)
V.REF
A.VSS
INT
RESET
IC4 M34225M2-110SP
D8 MTZ7.5B
AV1 A.FF
AV2 A.MUTE(L)
TO 0 3 MAIN(VIDEO) (Page 3-27,28)
AV3 EE(L)
AV4 V.REC(L)
AV5 REAR(L)
AV6 PB SPECIAL(H)
AV7 SP(L)
AV8 EDIT(L)
AV9 RENT(L)
AT7 VIDEO(L)
AT8 F.E. CTL(L)
AT9 REC(L)
TO 0 3 MAIN(TERMINAL) (Page 3-21,22)

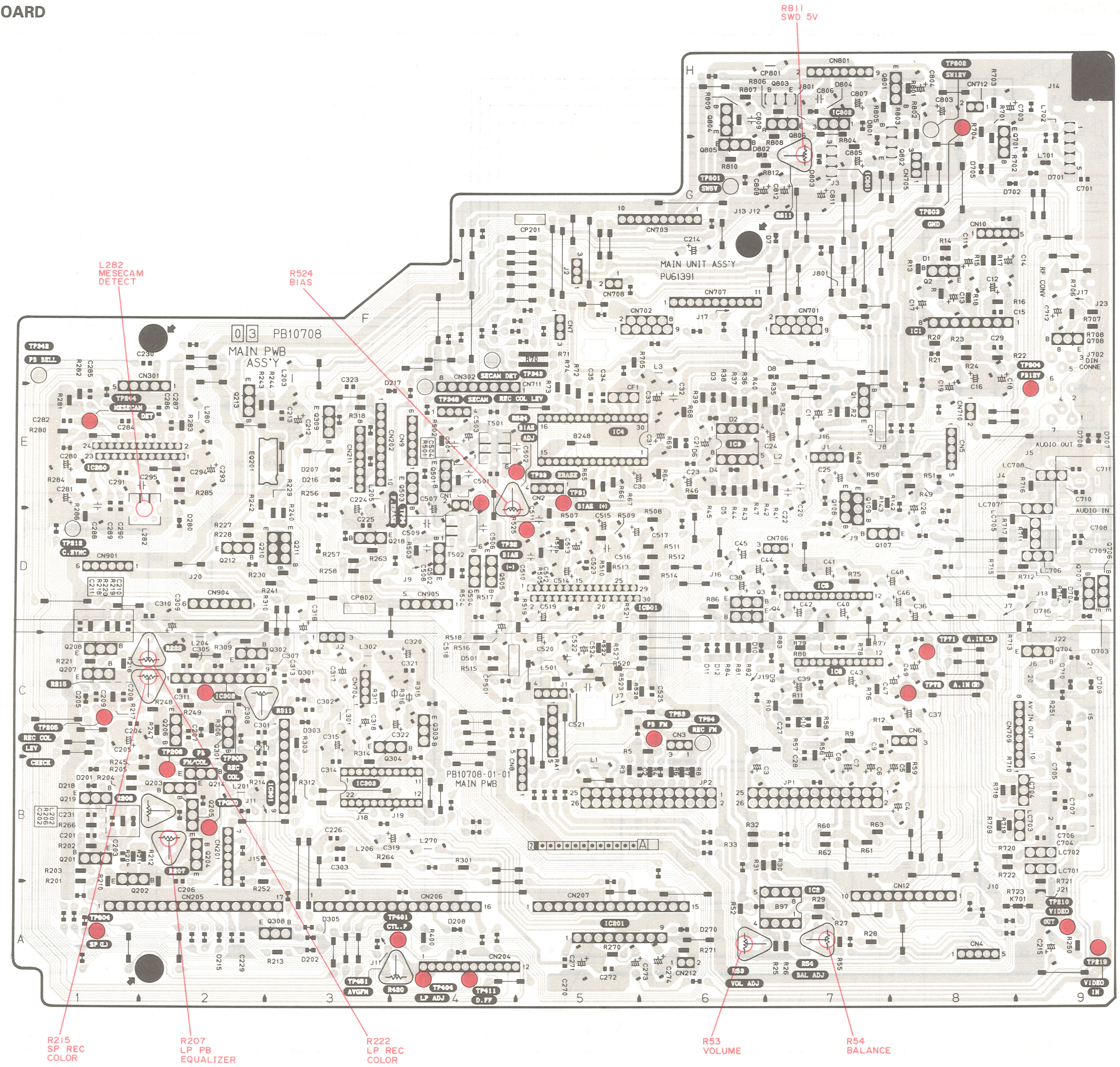
3.12 VIDEO SCHEMATIC DIAGRAM



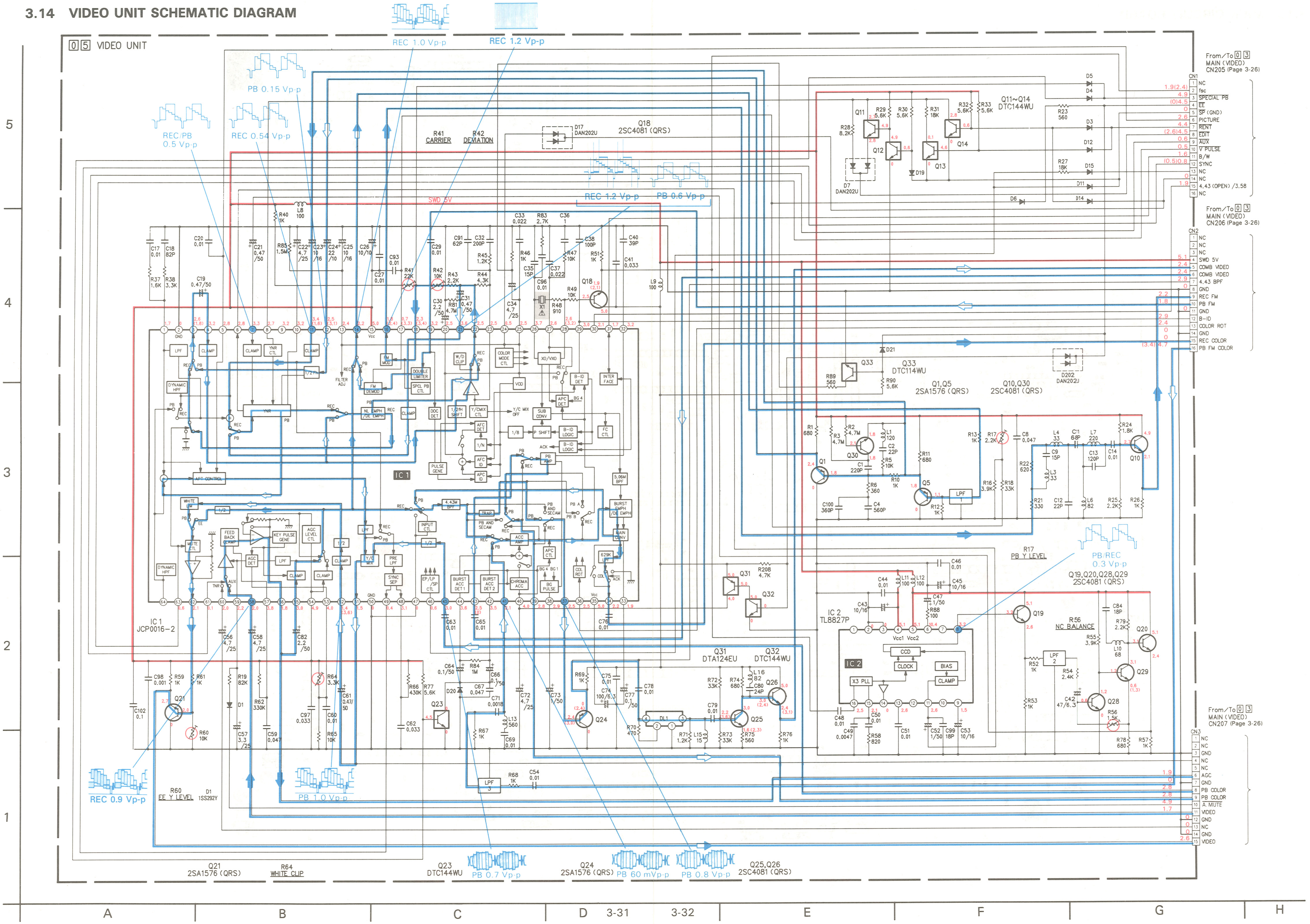
03 MAIN (VIDEO SECTION)
REC/PB 1.0 Vp-p
CN205
fsc
PB SPECIAL(L)
EE(L)
SP(L)
APT CTL
RENT(L)
EDIT(L)
AUX(L)
V.PULSE
B/W.(H)
C.SYNC
NTSC LP(L)
CCIR(L)/NTSC(H)
B/W(L)
FROM/TO 05 VIDEO UNIT CN1 (Page 3-22)
D215
C229 56P
R256 2.4K
R257 2.2K
R258 2.2K
L280 100μ
PB 0.4 Vp-p (PAL/SECAM)
REC 0.6 Vp-p (PAL/SECAM)
CN206
SW 5V
FROM COMB
COMB RETURN
FROM 4.43 BPF
GND
REC FM
PB FM
GND
B-ID
COL.ROT
GND
REC COL.
PB FM COL.
FROM/TO 05 VIDEO UNIT CN2 (Page 3-22)
D208
IC280
BA7106LS
TP244 MESECAM DET.
C280 10/16
C281 3.3/50
C282 470P
R281 680
R282 390
C285 0.01
C286 0.01
C287 0.01
R283 100K
R280 910K
C284 0.01
COMP
LIM
CLAMP
MONO MULTI
SYNC
FM DET
LIM SW
REC
PB
PAL
SECAM
ATT
VCC (AMP)
GND (AMP)
VCC
NC
SECAM/PAL
REC/PB
1/2fH DET
GND
C291 4.7P
CH
R285 10K
L282
C295 100P
R284 27K
R286 33K
NY
C288 470
C289 27P
C290 0.0047
C293 470/6.3
C294 0.01
D280
TP212 C.SYNC
Q201, Q202 2SC1740S(RS)
Q204 DTC114WS
Q219
DTA12
C231 0.01
R266 820
R202 22K
R204 6.8K
C201 0.01
L202 18μ
R206 100
R207 4.7K
Q202
R201 1K
R203 22K
D201
C202 39P
C203 0.01
Q201
Q204
REC 0.35 Vp-p
REC 0.28 Vp-p (SECAM)
PB 0.26 Vp-p (PAL/SECAM)
PB 0.7 Vp-p
PB 0.65 Vp-p
L282 MESECAM DET
R207 LP VIDEO EQ
R208 SP VIDEO EQ
REC/PB 4.0 Vp-p
CN207
GND
PB VIDEO IN
AGC OUT
AGC IN
GND
PB COL.OUT
PB COL.IN
P.MUTE(L)
AUX OUT
GND
TUNER OUT
GND
VIDEO IN
FROM/TO 05 VIDEO UNIT CN3 (Page 3-22)
R264 330
L206 120μ
C226 4.7P
L204 100μ
R247 2.2K
Q206
R248 2.2K
R249 680
REC/PB 2.0 Vp-p
REC/PB 2.0 Vp-p (SECAM)
D202
Q308 DAT124ES
Q308
L205 100μ
Q218
Q218 2SC1740S(RS)
C224 47/16
C225 0.01
R263 680
CN905
GND
VIDEO OUT
SWD 12V
VIDEO IN
SWD 5V
FROM/TO 17 ON-SCREEN CN903 (Page 3-52)
⚠ CP802 ICP-F10
IC303
BA7630S
C316 0.47/50
C314 0.01
C315 47/6.3
L301 100μ
C317 0.47/50
C318 1/50
C319 1/50
R314 3.3M
PB
Vcc
TU
DEC GND
AUX
CLAMP
LINE
6dB AMP
IIL LOGIC
RST
Q1 Q2 Q3 Q4 Q5 Q6 Q7 Q8 Q9
DATA
CLK
INPUT SEL.
GND
VDEC
VT3
VT4
RGB OUT(L)
VIDEO 12V ON(L)
TO 03 MAIN (TERMINAL) (Page 3-22)
VA1
VA2
VA3
AV CTL3 DEC(L)
AV CTL4 TU(L)
AV CTL2 DEC(H)
TO 03
8
7
6
5
4
3
2
1
A
B
C
D
E
F


PB 0.26 Vp-p (PAL/SECAM)
Q219 DTA124ES
TP206 PB FM/COL
L201 100μ
Q211, Q214, Q210 2SA933S(RS)
Q212, Q213 2SC1740S(RS)
R209 1.5K
R211 33K
C206 0.01
C204 0.01
C205 47/6.3
R245 1K
Q202
Q214
TPGND
R210 820
R212 15K
3.0
0.9
1.6
4.4 (3.2)
3.7 (2.5)
0
C212 47/16
C213 0.01
R227 1K
R229 12K
Q212
12.3
7.8
7.1
D207
R228 1K
3.2
3.2
Q211
Q210
2.5
R240 1K
5.6
0
0
R230 10K
R242 1K
R241 2.2K
EQ201 PU54838 PU60714
12.3
7.8
7.1
Q213
R243 1K
R244 1.5K
C214 47/10
L203 100μ
TP401 CTL.P
TP404 LP.ADJ
TP411 D.FF
SW.P.ADJ
R213 2.2K
R400 1K
CN204
2.7
2.6
(3.2) 4.4
0
-
0.5
(2.4) 1.9
0
1 LP.ADJ
3 CTL.P
4 PB FM
5 V.PULSE
6 D.FF
7 C.SYNC
8 FSC
9 LP SPECIAL(H)
FROM/TO 7 9 M-CTL/SERVO CN3 (Page 3-70)
AV3 EE(L)
AV7 SP(L)
AV1 A.FF
AV4 REC(L)
AV2 AUDIO MUTE(L)
AV5 REAR(L)
AV9 RENT(L)
AV8 EDIT(L)
AV6 PB SPECIAL(L)
VA4 AUDIO AUX(L)
FROM/TO 0 3 MAIN (AUDIO) (Page 3-25)
CN201
0.5
0
(3.9) 0.7
(3.1) 2.7
(2.5) 3.7
0
1 SYNC
2 GND
3 PB FM
4 REC FM/COL.
5 PB FM/COL.
6 GND
FROM/TO 4 3 PRE/REC CN201 (Page 3-63)
PB 0.26 Vp-p (PAL/SECAM)
PB 0.32 Vp-p (PAL/SECAM)
REC 0.35 Vp-p (PAL/SECAM)
L204 100μ
Q206 2SC1740S(RS)
Q207, Q208 2SC1740S(RS)
R247 2.2K
C207 0.01
Q206
5.1
2.1
1.5
R248 2.2K
R249 680
C309 47/6.3
C310 0.01
R214 390
R215 680
R216 10K
C208 0.01
Q207
5.1
2.5
1.9
Q208
5.1
1.9
R222 LP REC COLOR
R219 12K
C210 0.01
1.5
R221 3.3K
R222 680
R217 10K
R218 1K
C209 0.01
R220 27K
D205
C211 0.001
R215 SP REC COLOR
TP205 REC COL LEV CHECK
REC 0.08 Vp-p
REC 0.05 Vp-p (SECAM)
CN202
(4.8) 0.3
4.7
4.5
-
-
0
(4.3) 0
0
(-) 0
(4.9) 0
1 REC(L)
2 SW 5V
3 A/M/S
4 COL.ROT.
5 D.FF
6 SP(L)
7 REC START(L)
8 HEAD SEL.
9 A.FF
10 H.REC ST(L)
FROM/TO 4 3 PRE/REC CN202 (Page 3-63)
CN211
(4.9) 0
(4.4) 0
0.7
0.6
0
4.5
5.5
2.6
1 H.REC ST(L)
2 REC ST.(L)
3 SERIAL CLOCK
4 SERIAL DATA
5 HEAD SEL
6 A/M/S
7 P.MUTE(L)
8 SHARPNESS
FROM/TO 7 9 MECHACON/SERVO CN605 (Page 3-67)
VT1 RF VIDEO OUT
TV3 TU VIDEO IN
FROM/TO 0 3 MAIN (TERMINAL) (Page 3-22)
R251 75
TV1 VIDEO IN
TV2 GND
VT2 VIDEO OUT
L302 100μ
R315 390 (1/2W)
R316 390 (1/2W)
TP210 VIDEO OUT
C215 1000/6.3
R250 75
2.1
1.4
Q304
1.8
0
Q303
1.1
0
C322 470/6.3
R317 75
C320 47/16
C321 0.01
Q303, Q304 2SA1267(YG)
L270 100μ
IC201 LVA523SA
H L
L H
2.0 5.0 0 1.5 0 2.2 0.6 2.0 0
R270 6.8K
C274 1/50
C270 0.01
C271 47/6.3
C272 0.01
C273 1/50
D270
R271 75
CP201 ICP-F20
TP219 VIDEO IN
RV2 SW 12V
RV4 AL 12V
RV5 AL 5V
RV1 SW 5V
RV3 GND
FROM 0 3 MAIN (REG) (Page 3-13)
VA1 VA2 VA3 VA4
AV CTL3 DEC(L)
AV CTL4 TU(L)
AV CTL2 DEC(H)
AV CTL1 AUX(H)
TO 0 3 MAIN (AUDIO) (Page 3-23)
CN704
1 DESC VIDEO IN
2 GND
3 SCR VIDEO OUT
4 GND
FROM/TO 0 6 TERMINAL CN705 (Page 3-35)
REC/PB 1.0 Vp-p
CN212
2 V.GND
1 FRONT V.IN
FROM 3 7 SW JACK CN5 (Page 3-60)
REC 1.0 Vp-p

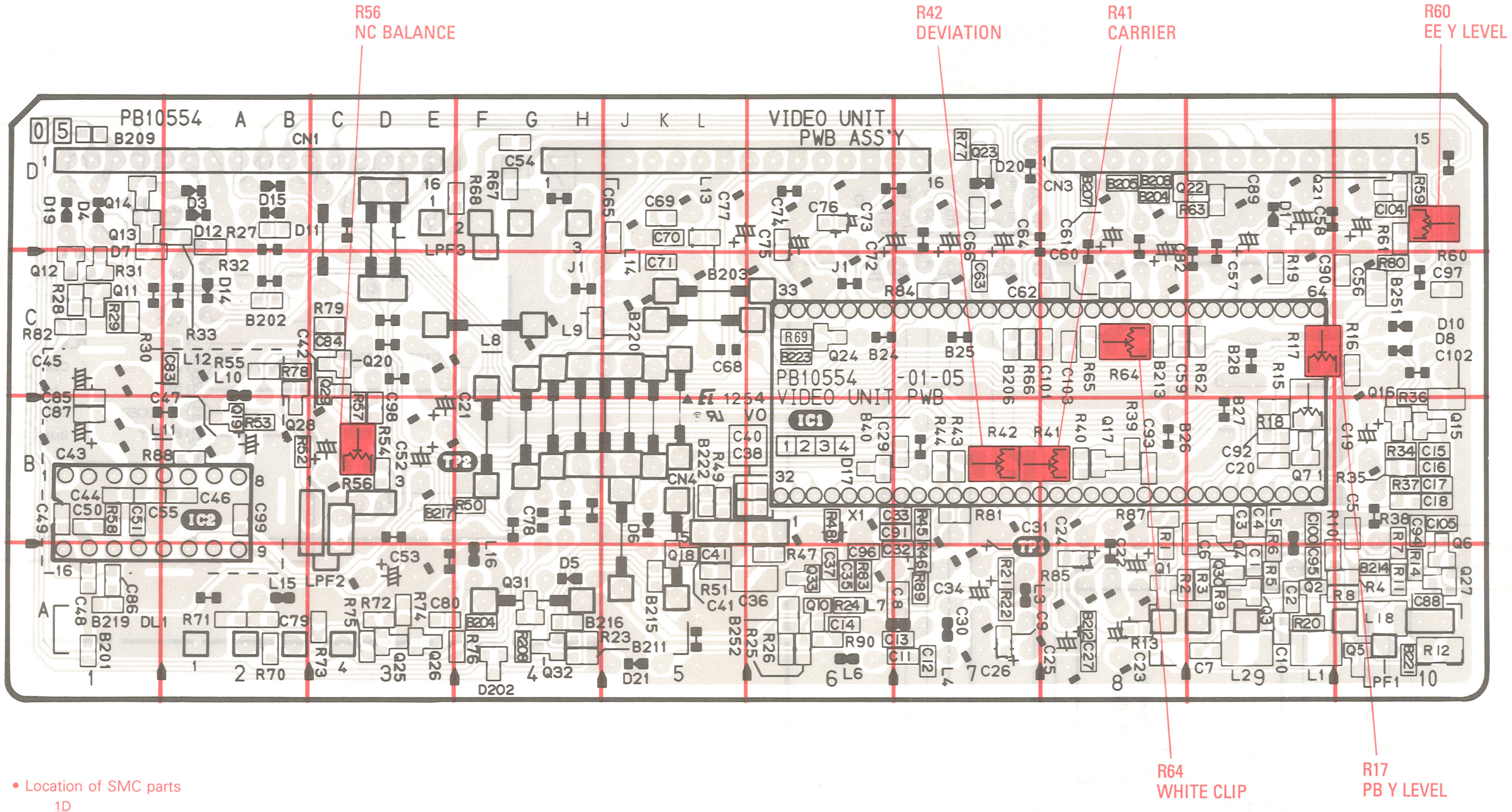
3.13 MAIN CIRCUIT BOARD


R811
SWD 5V
L282
MESECAM
DETECT
R524
BIAS
MAIN PWB
ASS'Y
PB10708
MAIN UNIT ASS'Y
PU61391
PB10708-01-01
MAIN PWB
R215
SP REC
COLOR
R207
LP PB
EQUALIZER
R222
LP REC
COLOR
R53
VOLUME
R54
BALANCE
TP801
SW5V
TP802
SW12V
TP803
GND
TP804
PB12V
TP342
PB BELL
TP344
MESECAM DET
TP343
SECAM DET
TP346
SECAM
TP312
C.SYNC
TP71
A.IN(L)
TP72
A.IN(R)
TP205
REC COL
TP206
FM/COL
TP208
REC COL
TP204
SP(L)
TP451
AVGFM
TP401
CTL.P
TP404
LP ADJ
TP411
D.FF
TP53
ERASE
TP51
BIAS
TP52
BIAS
TP59
PB FM
TP54
REC FM
TP210
VIDEO OUT
TP219
VIDEO IN
R53
VOL ADJ
R54
BAL ADJ
R450
A
B
C
D
E
F
G
H
1
2
3
4
5
6
7
8
9

3.14 VIDEO UNIT SCHEMATIC DIAGRAM


05 VIDEO UNIT
REC 1.0 Vp-p
REC 1.2 Vp-p
PB 0.15 Vp-p
REC/PB 0.5 Vp-p
REC 0.54 Vp-p
REC 1.2 Vp-p
PB 0.6 Vp-p
SWD 5V
R41 CARRIER
R42 DEVIATION
D17 DAN202U
Q18 2SC4081 (QRS)
Q11~Q14 DTC144WU
D7 DAN202U
IC 1
IC 1 JCP0016-2
From/To 03 MAIN (VIDEO) CN205 (Page 3-26)
CN1
1 NC
2 fsc
3 SPECIAL PB
4 EE
5 SP (GND)
6 PICTURE
7 RENT
8 EDIT
9 AUX
10 V PULSE
11 B/W
12 SYNC
13 NC
14 NC
15 4.43 (OPEN)/3.58
16 NC
From/To 03 MAIN (VIDEO) CN206 (Page 3-26)
CN2
1 NC
2 NC
3 NC
4 SWD 5V
5 COMB VIDEO
6 COMB VIDEO
7 4.43 BPF
8 GND
9 REC FM
10 PB FM
11 GND
12 B-ID
13 COLOR ROT
14 GND
15 REC COLOR
16 PB FM COLOR
Q33 DTC114WU
D202 DAN202J
Q1,Q5 2SA1576 (QRS)
Q10,Q30 2SC4081 (QRS)
R17 PB Y LEVEL
PB/REC 0.3 Vp-p
Q19,Q20,Q28,Q29 2SC4081 (QRS)
IC 2 TL8827P
R56 NC BALANCE
Q31 DTA124EU
Q32 DTC144WU
From/To 03 MAIN (VIDEO) CN207 (Page 3-26)
CN3
1 NC
2 NC
3 GND
4 NC
5 NC
6 AGC
7 GND
8 PB COLOR
9 PB COLOR
10 A. MUTE
11 VIDEO
12 GND
13 NC
14 GND
15 VIDEO
REC 0.9 Vp-p
R60 EE Y LEVEL
D1 1SS292Y
PB 1.0 Vp-p
Q21 2SA1576 (QRS)
R64 WHITE CLIP
Q23 DTC144WU
PB 0.7 Vp-p
Q24 2SA1576 (QRS)
PB 60 mVp-p
PB 0.8 Vp-p
Q25,Q26 2SC4081 (QRS)
A
B
C
D
E
F
G
H
1
2
3
4
5

3.15 VIDEO UNIT CIRCUIT BOARD


R56
NC BALANCE
R42
DEVIATION
R41
CARRIER
R60
EE Y LEVEL
R64
WHITE CLIP
R17
PB Y LEVEL
PB10554
VIDEO UNIT
PWB ASS'Y
PB10554 -01-05
VIDEO UNIT PWB
A
B
C
D
1
2
3
4
5
6
7
8
9
10
CN1
CN3
CN4
IC1
IC2
J1
LPF1
LPF2
LPF3

• Location of SMC parts

1D ── Location

REF. No.	LOCATION
TRANSISTOR	
Q1	8A
Q5	10A
Q10	6A
Q11	1C
Q12	1C
Q13	1D
Q14	1D
Q18	5A
Q19	2B
Q20	3C
Q21	10D
Q23	7D
Q24	6C
Q25	3A
Q26	3A
Q28	2B
Q29	3C
Q30	9A
Q31	4A
Q32	4A
Q33	6A

REF. No.	LOCATION
DIODE	
D7	1C
D17	6B
D202	4A

REF. No.	LOCATION
COIL	
L1	9A

REF. No.	LOCATION
RESISTOR	
R1	8A
R2	9A
R3	9A
R5	9A
R6	9A
R10	10A
R11	10A
R12	10A
R13	8A
R16	10C
R17	9C
R18	9B
R19	9C
R21	7A
R22	7A
R23	4A
R24	6A
R25	6A
R26	6A
R27	2D
R28	1C
R29	1C
R30	1C
R31	1C
R32	2D
R33	2D

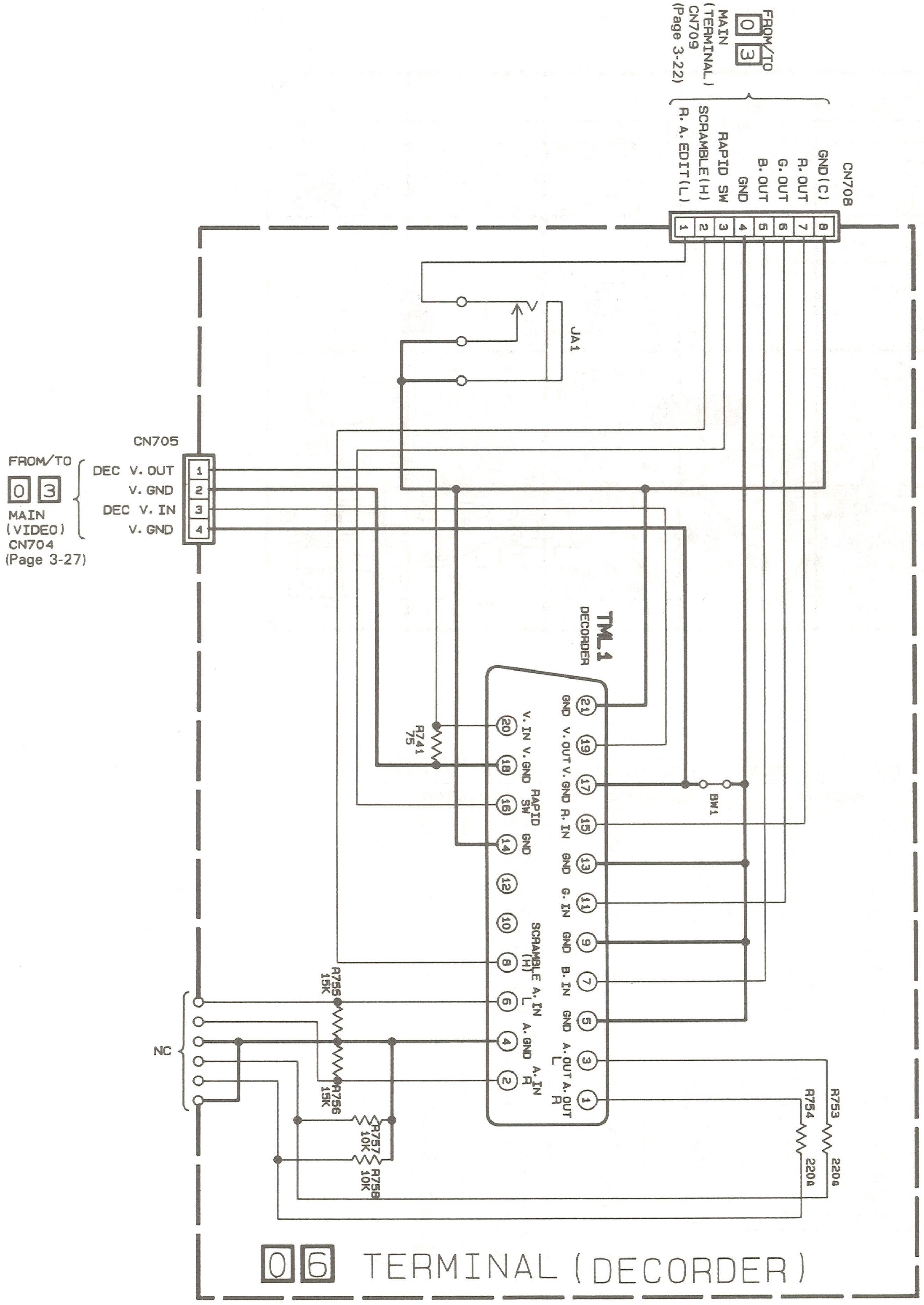
REF. No.	LOCATION
RESISTOR	
R37	10B
R38	10B
R40	8B
R41	8B
R42	7B
R43	7B
R44	7B
R45	7B
R46	7A
R47	6A
R48	6B
R49	5B
R51	5A
R52	2B
R53	2B
R54	3B
R55	2C
R56	3B
R57	3B
R58	1B
R59	10D
R60	10D
R61	10D
R62	9C
R64	8C
R65	8C

REF. No.	LOCATION
RESISTOR	
R66	7C
R67	4D
R68	4D
R69	6C
R70	2A
R71	2A
R72	3A
R73	3A
R74	3A
R75	3A
R76	4A
R77	7D
R78	2C
R79	3C
R81	7B
R83	6A
R84	7C
R85	8A
R88	2B
R89	7A
R90	6A
R208	4A

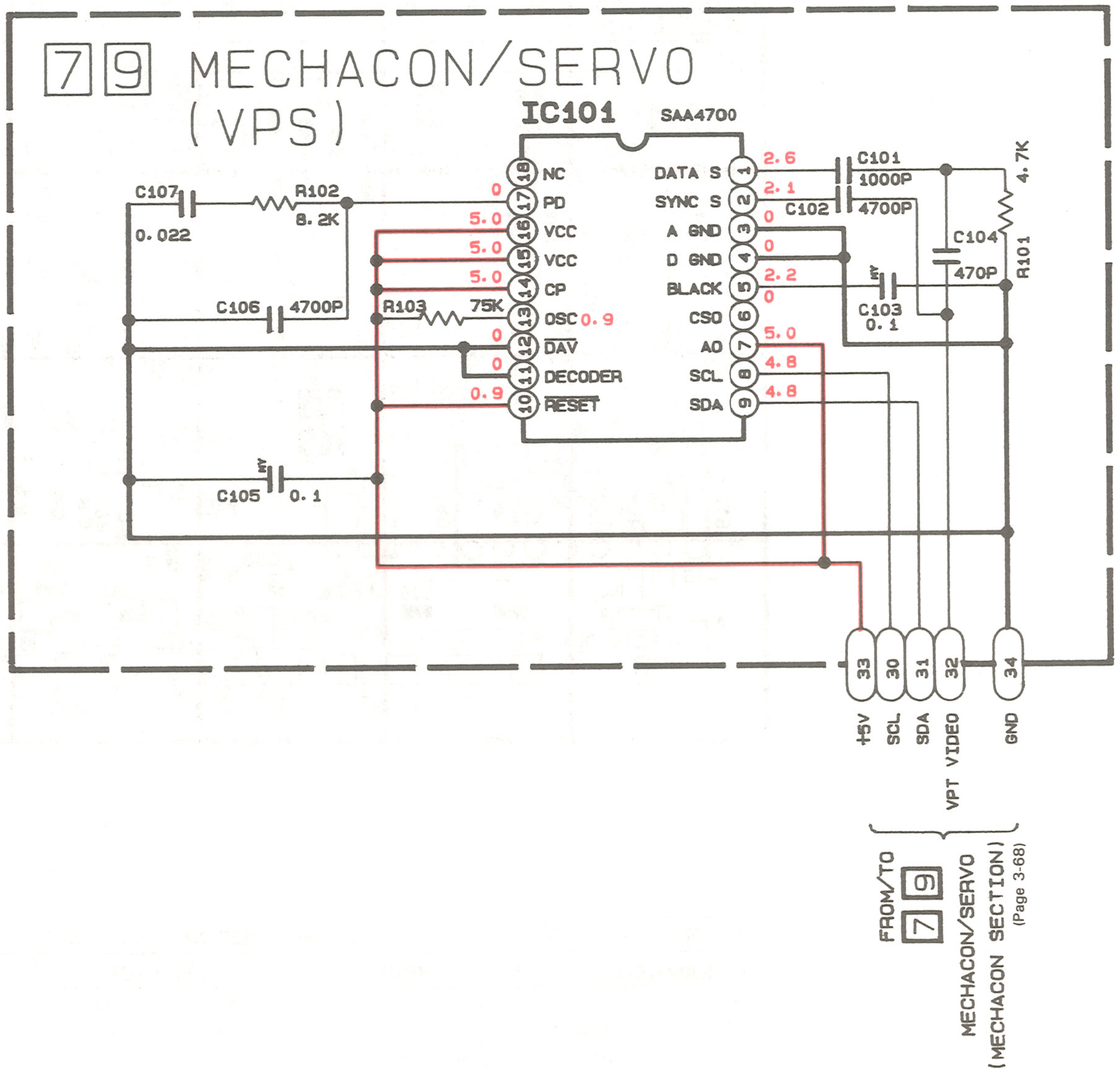
REF. No.	LOCATION
CAPACITOR	
C1	9A
C2	9A
C4	9B
C8	7A
C9	7A
C11	7A
C12	7A
C13	7A
C14	6A
C17	10B
C18	10B
C20	9B
C27	8A
C29	7B
C32	7A
C33	7B
C35	6A
C36	6A
C37	6A
C38	6B
C40	6B
C41	5A
C44	1B
C46	2B
C48	1A
C49	1B

REF. No.	LOCATION
CAPACITOR	
C50	1B
C51	1B
C54	4D
C59	8C
C60	8C
C62	8C
C63	7C
C65	5D
C67	7D
C69	5D
C71	5C
C75	6D
C76	6D
C79	2A
C80	3A
C84	3C
C91	7B
C93	8B
C96	6A
C97	10C
C98	3B
C99	2B
C100	9B
C102	10B

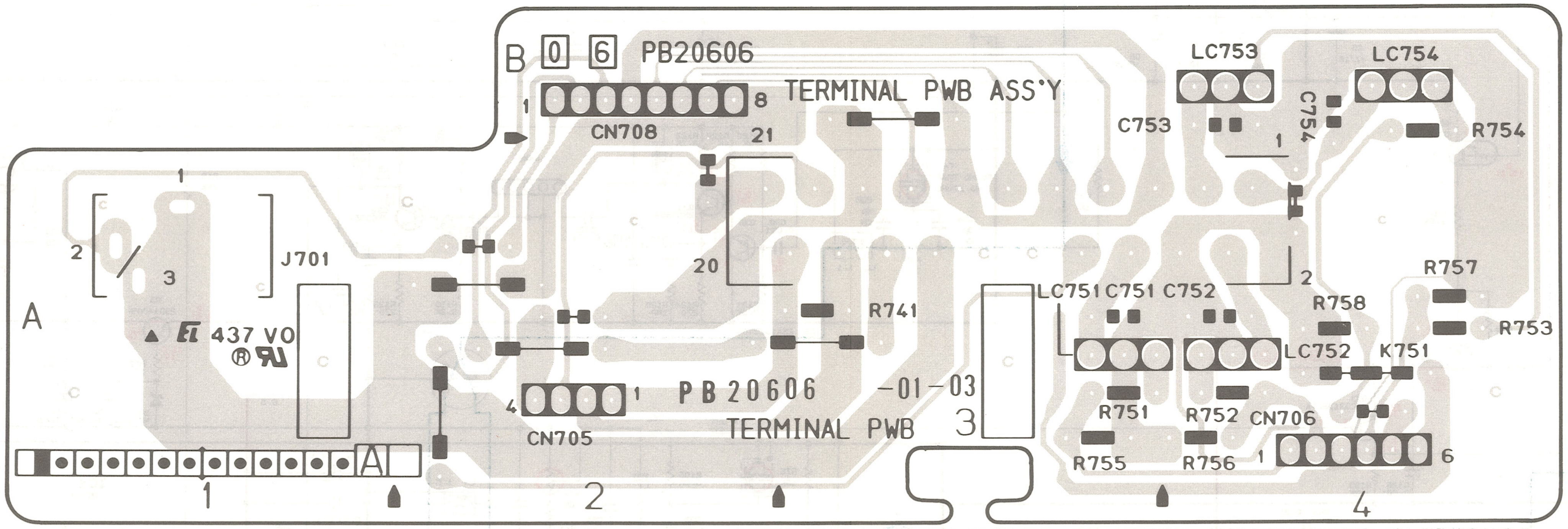
3.16 TERMINAL (DECORDER) SCHEMATIC DIAGRAM


FROM/TO
03
MAIN
(TERMINAL)
CN709
(Page 3-22)
CN708
GND(C)
R. OUT
G. OUT
B. OUT
GND
RAPID SW
SCRAMBLE(H)
R.A. EDIT(L)
1 2 3 4 5 6 7 8
JA1
CN705
FROM/TO
03
MAIN
(VIDEO)
CN704
(Page 3-27)
DEC V. OUT
V. GND
DEC V. IN
V. GND
TML1
DECORDER
GND
V.OUT
V.GND
R.IN
GND
G.IN
GND
B.IN
GND
A.OUT L
A.OUT R
V.IN
V.GND
RAPID SW
GND
SCRAMBLE (H)
A.IN L
A.GND
A.IN R
SW1
R741
75
R755
15K
R756
15K
R757
10K
R758
10K
R754
220
R753
220
NC
06 TERMINAL(DECORDER)

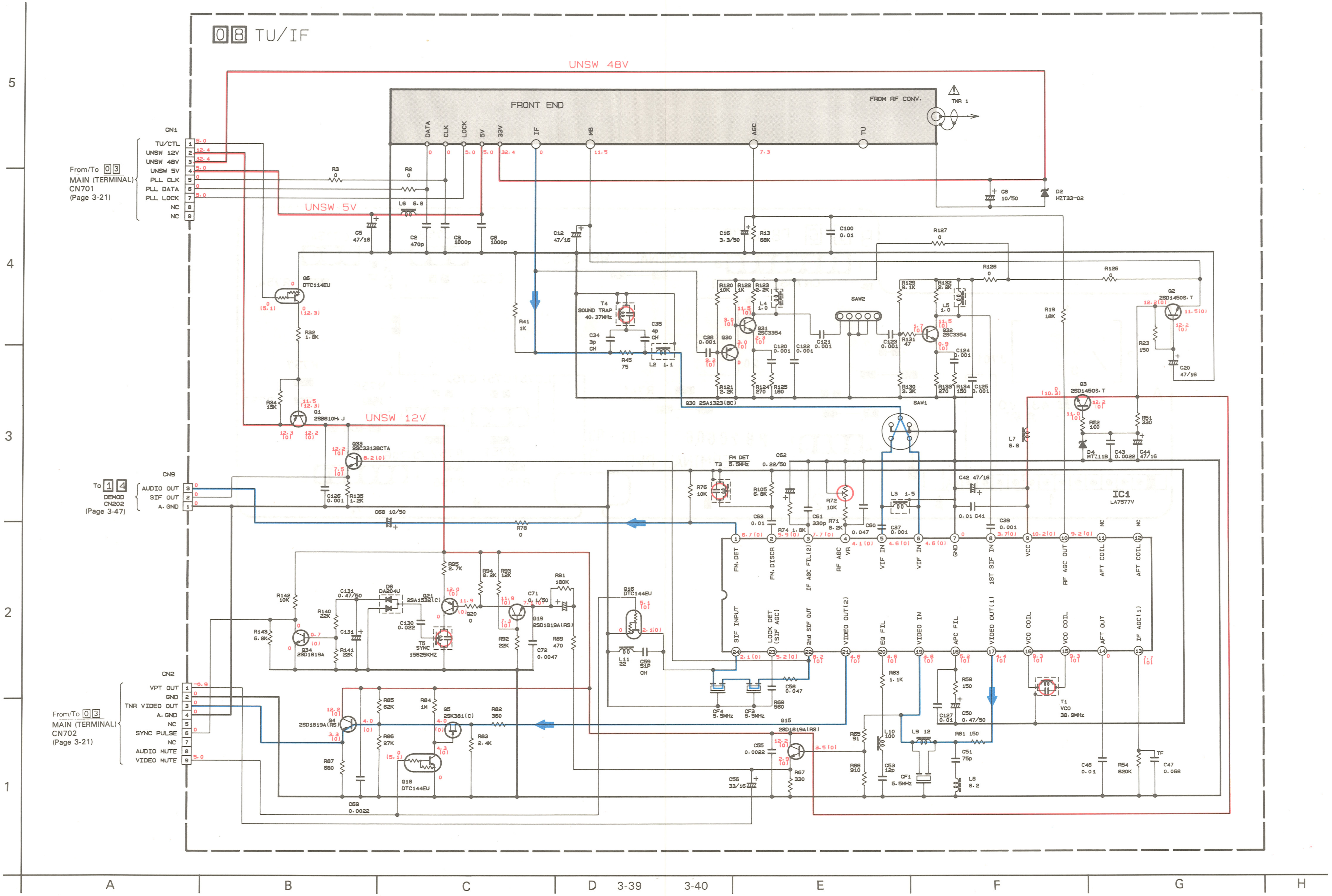
3.17 VPS SCHEMATIC DIAGRAM


79 MECHACON/SERVO
(VPS)
IC101
SAA4700
NC
PD
VCC
VCC
CP
OSC
DAV
DECODER
RESET
DATA S
SYNC S
A GND
D GND
BLACK
CSO
AO
SCL
SDA
C107
0.022
R102
8.2K
C106
4700P
R103
75K
C105
0.1
C101
1000P
C102
4700P
C103
0.1
C104
470P
R101
4.7K
0
5.0
5.0
5.0
0.9
0
0
0.9
2.6
2.1
0
0
2.2
0
5.0
4.8
4.8
33 30 31 32 34
+5V
SCL
SDA
VPT VIDEO
GND
FROM/TO
79
MECHACON/SERVO
(MECHACON SECTION)
(Page 3-68)

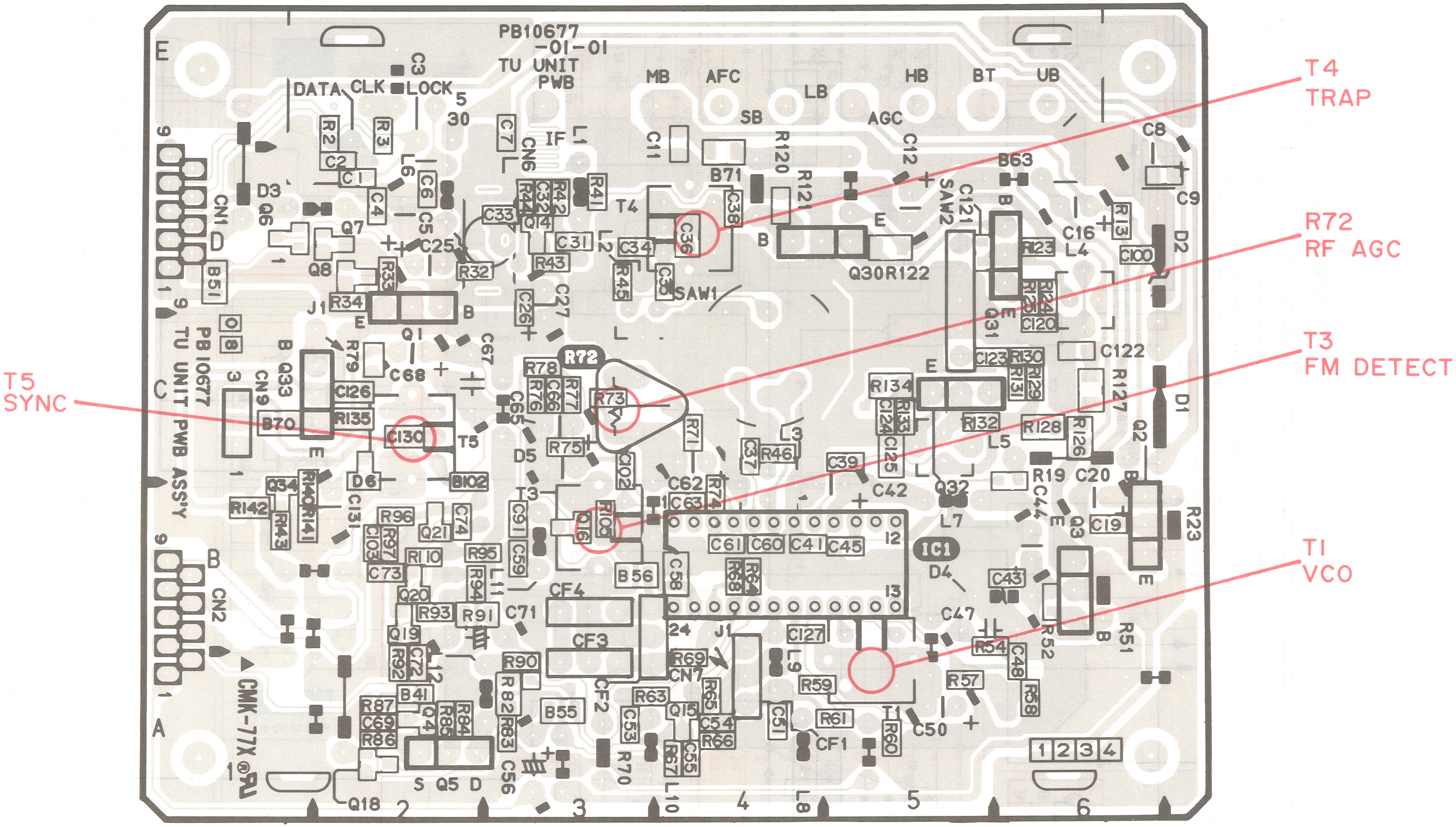
3.18 TERMINAL (DECORDER) CIRCUIT BOARD


B 0 6 PB20606
TERMINAL PWB ASS'Y
CN708
1
8
21
20
LC753
LC754
C753
C754
R754
1
2
J701
A
437 VO
R741
LC751 C751 C752
R757
R758
R753
LC752
K751
R751
R752
CN706
R755
R756
1
6
CN705
4
1
PB20606 -01-03
TERMINAL PWB
3
1
2
4

3.19 TUNER UNIT SCHEMATIC DIAGRAM

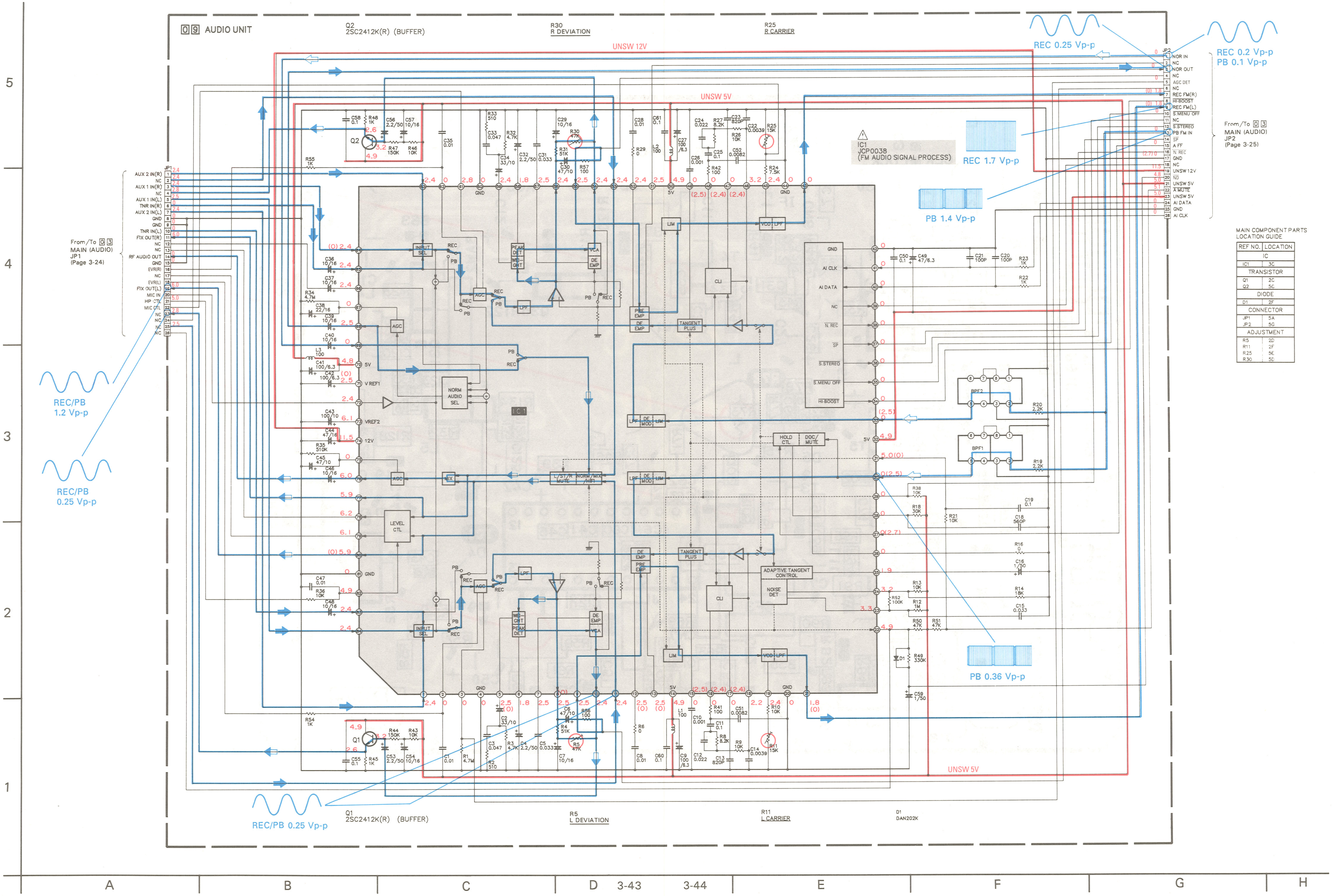

08 TU/IF
UNSW 48V
FRONT END
FROM RF CONV.
TNR 1
DATA
CLK
LOCK
5V
33V
IF
MB
AGC
TU
CN1
TU/CTL
UNSW 12V
UNSW 48V
UNSW 5V
PLL CLK
PLL DATA
PLL LOCK
NC
NC
From/To 03
MAIN (TERMINAL)
CN701
(Page 3-21)
UNSW 5V
L6 6.8
C5 47/16
C2 470p
C3 1000p
C6 1000p
C12 47/16
C16 3.3/50
R13 68K
C100 0.01
R127 0
C8 10/50
D2 HZT33-02
Q6 DTC114EU
R32 1.8K
R34 15K
Q1 2SB810H.J
UNSW 12V
T4 SOUND TRAP 40.37MHz
C34 3p CH
C35 4p CH
R45 75
L2 1:1
R41 1K
C38 0.001
Q30 2SA1323(BC)
Q31 2SC3354
Q32 2SC3354
SAW2
SAW1
L4 1.0
L5 1.0
R120 10K
R122 1K
R123 2.2K
R121 2.2K
R124 270
R125 180
C120 0.001
C122 0.001
C121 0.001
C123 0.001
R131 47
C124 0.001
R129 9.1K
R132 2.2K
R130 3.3K
R133 270
R134 150
C125 0.001
R128 0
R126 0
R19 18K
Q2 2SD1450S.T
R23 150
C20 47/16
Q3 2SD1450S.T
R52 100
R51 330
D4 MTZJ11B
C43 0.0022
C44 47/16
L7 6.8
CN9
AUDIO OUT
SIF OUT
A.GND
To 14
DEMOD
CN202
(Page 3-47)
Q33 2SC3313BCTA
C126 0.001
R135 1.2K
C58 10/50
R78 0
FM DET
T3 5.5MHz
C62 0.22/50
R76 10K
R105 6.8K
R72 10K
R71 8.2K
L3 1.5
C42 47/16
IC1 LA7577V
C63 0.01
R74 1.8K
C61 330p
C60 0.047
C37 0.001
C41 0.01
C39 0.001
FM.DET
FM.DISCRI
IF AGC FIL(2)
RF AGC VR
VIF IN
VIF IN
GND
1ST SIF IN
VCC
RF AGC OUT
AFT COIL
AFT COIL
SIF INPUT
LOCK DET (SIF AGC)
2nd SIF OUT
VIDEO OUT(2)
EQ FIL
VIDEO IN
APC FIL
VIDEO OUT(1)
VCO COIL
VCO COIL
AFT OUT
IF AGC(1)
R95 2.7K
R94 8.2K
R93 12K
R91 180K
C71 0.47/50
Q16 DTC144EU
R142 10K
C131 0.47/50
D6 DA204U
Q21 2SA1532(C)
Q20
Q19 2SD1819A(RS)
R140 22K
C130 0.022
C131
R143 6.8K
Q34 2SD1819A
R141 22K
T5 SYNC 15625KHZ
R92 22K
R89 470
C72 0.0047
L11 22
C59 51P CH
CF4 5.5MHz
CF3 5.5MHz
C58 0.047
R69 560
R63 1.1K
R59 150
C127 0.01
C50 0.47/50
T1 VCO 38.9MHz
CN2
VPT OUT
GND
TNR VIDEO OUT
A.GND
NC
SYNC PULSE
NC
AUDIO MUTE
VIDEO MUTE
From/To 03
MAIN (TERMINAL)
CN702
(Page 3-21)
Q4 2SD1819A(RS)
R85 62K
R84 1M
Q5 2SK381(C)
R82 360
R86 27K
R83 2.4K
R87 680
Q18 DTC144EU
C69 0.0022
Q15 2SD1819A(RS)
C55 0.0022
C56 33/16
R67 330
R65 91
R66 910
L10 100
C53 12p
L9 12
CF1 5.5MHz
R61 150
C51 75p
L8 8.2
C48 0.01
R54 820K
TF
C47 0.068
A
B
C
D
E
F
G
H
1
2
3
4
5

3.20 TUNER UNIT CIRCUIT BOARD



T4
TRAP
R72
RF AGC
T3
FM DETECT
T5
SYNC
T1
VCO
PB10677
-01-01
TU UNIT
PWB
PB10677
TU UNIT PWB ASS'Y
CMK-77X
DATA
CLK
LOCK
IF
MB
AFC
SB
LB
AGC
HB
BT
UB
CN1
CN2
CN6
CN7
CN9
SAW1
SAW2
IC1
Q30
Q31
Q32
R122
CF1
CF2
CF3
CF4
E
C
B
A
1
2
3
4
5
6

3.21 AUDIO UNIT SCHEMATIC DIAGRAM


0 9 AUDIO UNIT
Q2 2SC2412K(R) (BUFFER)
R30 R DEVIATION
R25 R CARRIER
UNSW 12V
UNSW 5V
REC 0.25 Vp-p
REC 0.2 Vp-p
PB 0.1 Vp-p
REC 1.7 Vp-p
PB 1.4 Vp-p
PB 0.36 Vp-p
REC/PB 1.2 Vp-p
REC/PB 0.25 Vp-p
REC/PB 0.25 Vp-p
IC1 JCP0038 (FM AUDIO SIGNAL PROCESS)
From/To 0 3 MAIN (AUDIO) JP1 (Page 3-24)
JP1
AUX 2 IN(R)
NC
AUX 1 IN(R)
NC
AUX 1 IN(L)
TNR IN(R)
AUX 2 IN(L)
GND
GND
TNR IN(L)
FIX OUT(R)
NC
NC
RF AUDIO OUT
GND
EVR(R)
NC
EVR(L)
FIX OUT(L)
MIC IN
HP CTL
MIC CTL
NC
NC
NC
NC
From/To 0 3 MAIN (AUDIO) JP2 (Page 3-25)
JP2
NOR IN
NC
NOR OUT
NC
AGC DET
NC
REC FM(R)
HI-BOOST
REC FM(L)
S.MENU OFF
NC
S.STEREO
PB FM IN
SP
A FF
N. REC
GND
NC
UNSW 12V
ND
UNSW 5V
A MUTE
UNSW 5V
AI DATA
GND
AI CLK
INPUT SEL
AGC
NORM AUDIO SEL
LEVEL CTL
MIX
PEAK DET
WEIGHT
VCA
DE EMP
PRE EMP
LPF
LIM
VCO
CLI
TANGENT PLUS
L/ST/R MUTE
NORM/MIX/HIFI
DE MOD
HOLD CTL
DOC/MUTE
ADAPTIVE TANGENT CONTROL
NOISE DET
BPF1
BPF2
Q1 2SC2412K(R) (BUFFER)
R5 L DEVIATION
R11 L CARRIER
D1 DAN202K
1
2
3
4
5
A
B
C
D
E
F
G
H

MAIN COMPONENT PARTS
LOCATION GUIDE

REF NO.	LOCATION
IC	
IC1	3C
TRANSISTOR	
Q1	2C
Q2	5C
DIODE	
D1	2F
CONNECTOR	
JP1	5A
JP2	5G
ADJUSTMENT	
R5	2D
R11	2F
R25	5E
R30	5D

3.22 AUDIO UNIT CIRCUIT BOARD

MAIN COMPONENT PARTS LOCATION GUIDE
< AUDIO UNIT >

REF. No.	LOCATION
IC	
IC1	A-3B

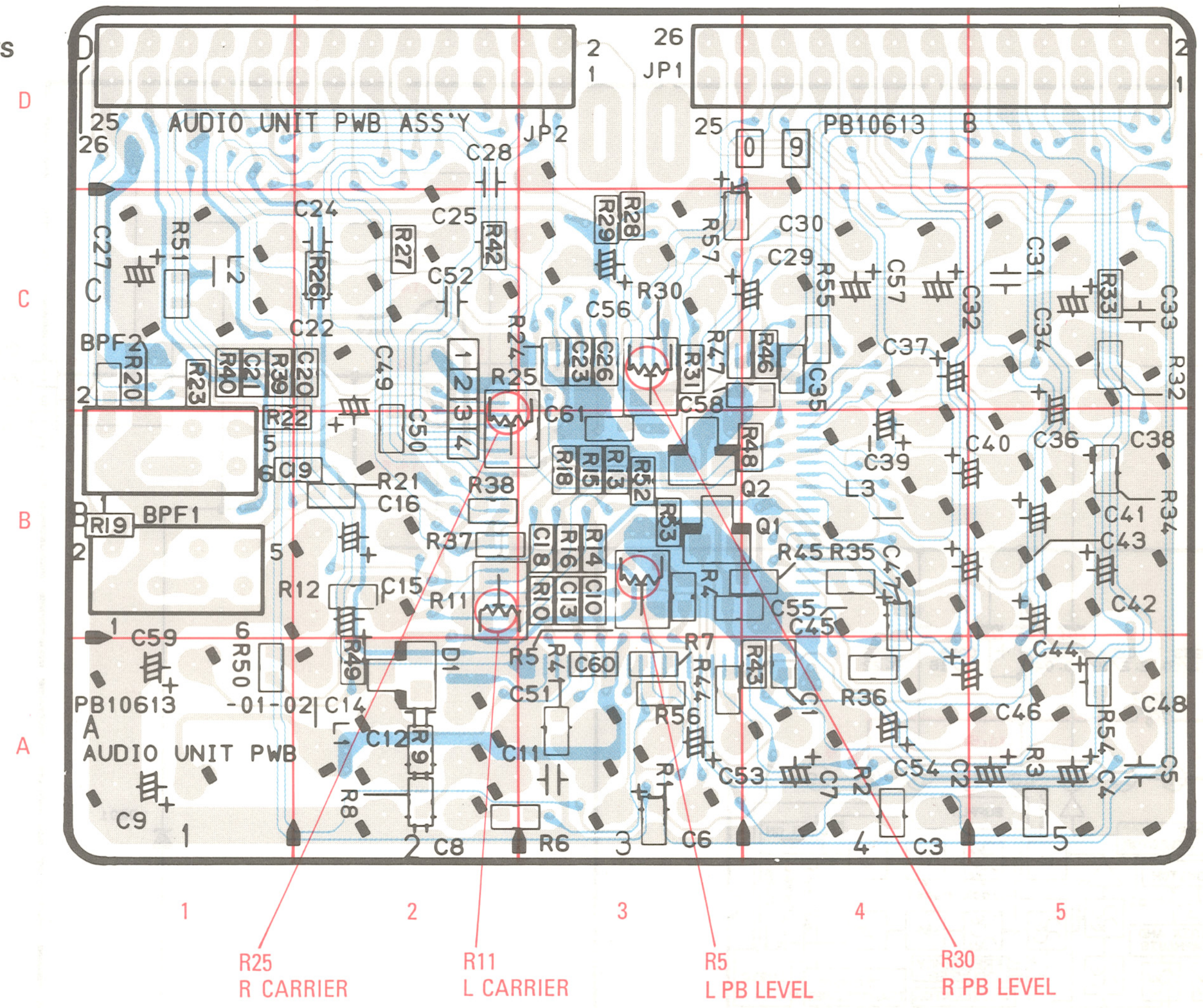
REF. No.	LOCATION
TRANSISTOR	
Q1 Q2	B-3B B-3B

REF. No.	LOCATION
DIODE	
D1	B-2A

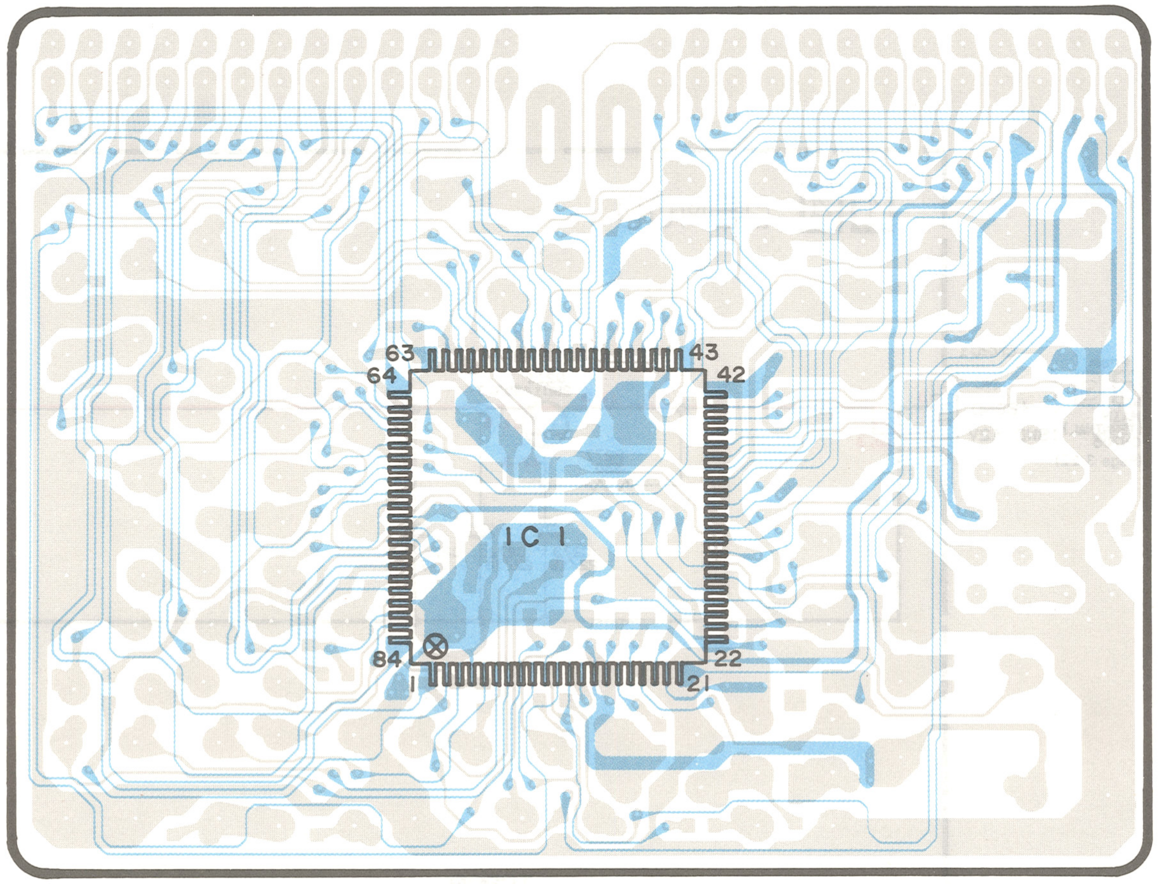
REF. No.	LOCATION
CONNECTOR	
JP1 JP2	B-2D B-4D

REF. No.	LOCATION
ADJUSTMENT	
R5 R11 R25 R30	B-3B B-2B B-2C B-3C

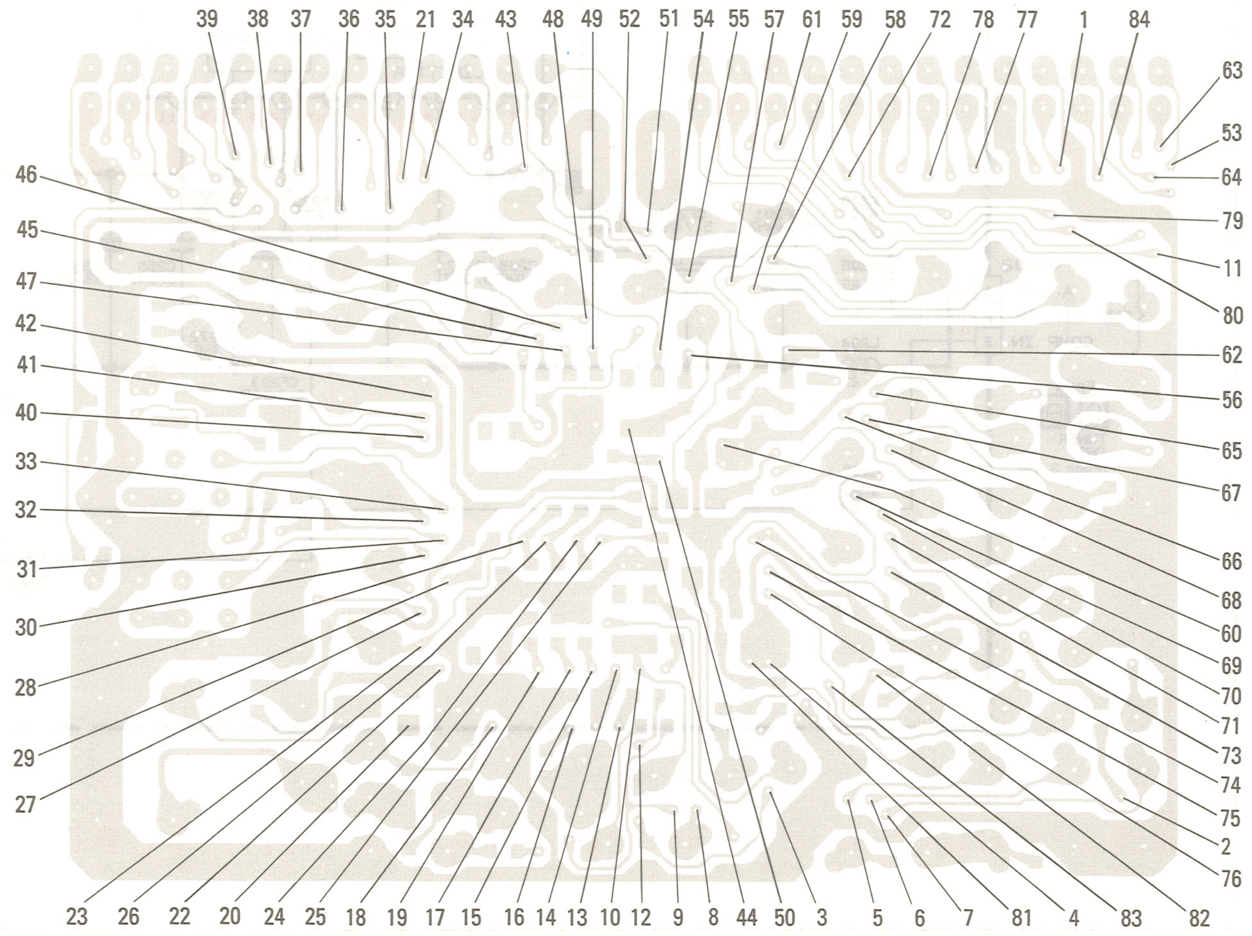
— CONDUCTOR SIDE —
(B)


D
C
B
A
1
2
3
4
5
AUDIO UNIT PWB ASS'Y
PB10613 B
PB10613 A -01-02
AUDIO UNIT PWB
JP1
JP2
IC1
Q1
Q2
D1
BPF1
BPF2
L2
L3
R25
R CARRIER
R11
L CARRIER
R5
L PB LEVEL
R30
R PB LEVEL

— COMPONENT SIDE —
(A)


IC 1
1
21
22
42
43
63
64
84

— IC PIN NUMBER LOCATION —


39 38 37 36 35 21 34 43 48 49 52 51 54 55 57 61 59 58 72 78 77 1 84
63 53 64 79 11 80 62 56 65 67 66 68 60 69 70 71 73 74 75 2 76
46 45 47 42 41 40 33 32 31 30 28 29 27
23 26 22 20 24 25 18 19 17 15 16 14 13 10 12 9 8 44 50 3 5 6 7 81 4 83 82

LEADLESS COMPONENT PARTS LOCATION GUIDE < AUDIO UNIT >

• Location of SMC parts
A-1D
Location
A : COMPONENT SIDE
B : CONDUCTOR SIDE

REF. No.	LOCATION
IC	
IC1	A-3B

REF. No.	LOCATION
TRANSISTOR	
Q1 Q2	B-3B B-3B

REF. No.	LOCATION
DIODE	
D1	B-2A

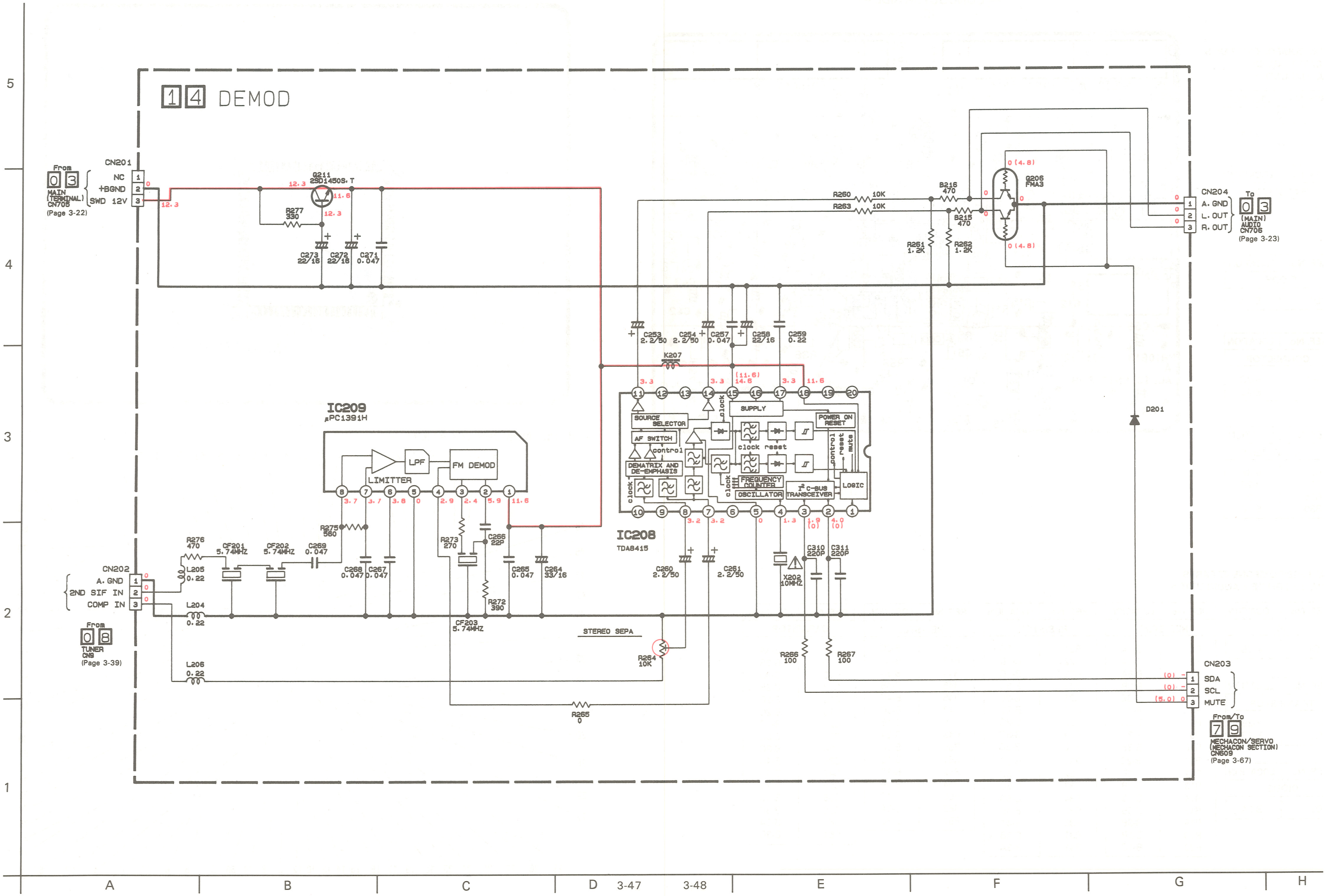
REF. No.	LOCATION
RESISTOR	
R1	B-3A
R2	B-4A
R3	B-5A
R4	B-3B
R5	B-3B
R6	B-3A
R8	B-2A
R9	B-2A
R10	B-3B
R11	B-2B
R12	B-2B
R13	B-3B
R14	B-3B
R16	B-3B
R18	B-3B
R19	B-1B
R20	B-1C

REF. No.	LOCATION
RESISTOR	
R21	B-2B
R22	B-1B
R23	B-1C
R24	B-3C
R25	B-2C
R26	B-2C
R27	B-2C
R29	B-3C
R30	B-3C
R31	B-3C
R32	B-5C
R33	B-5C
R34	B-5B
R35	B-4B
R36	B-4A
R37	B-2B
R41	B-3A

REF. No.	LOCATION
RESISTOR	
R42	B-2C
R43	B-4A
R44	B-3A
R45	B-4B
R46	B-4C
R47	B-3C
R48	B-4B
R49	B-2A
R50	B-1A
R51	B-1C
R52	B-3B
R54	B-5A
R55	B-4C
R56	B-3A
R57	B-3C

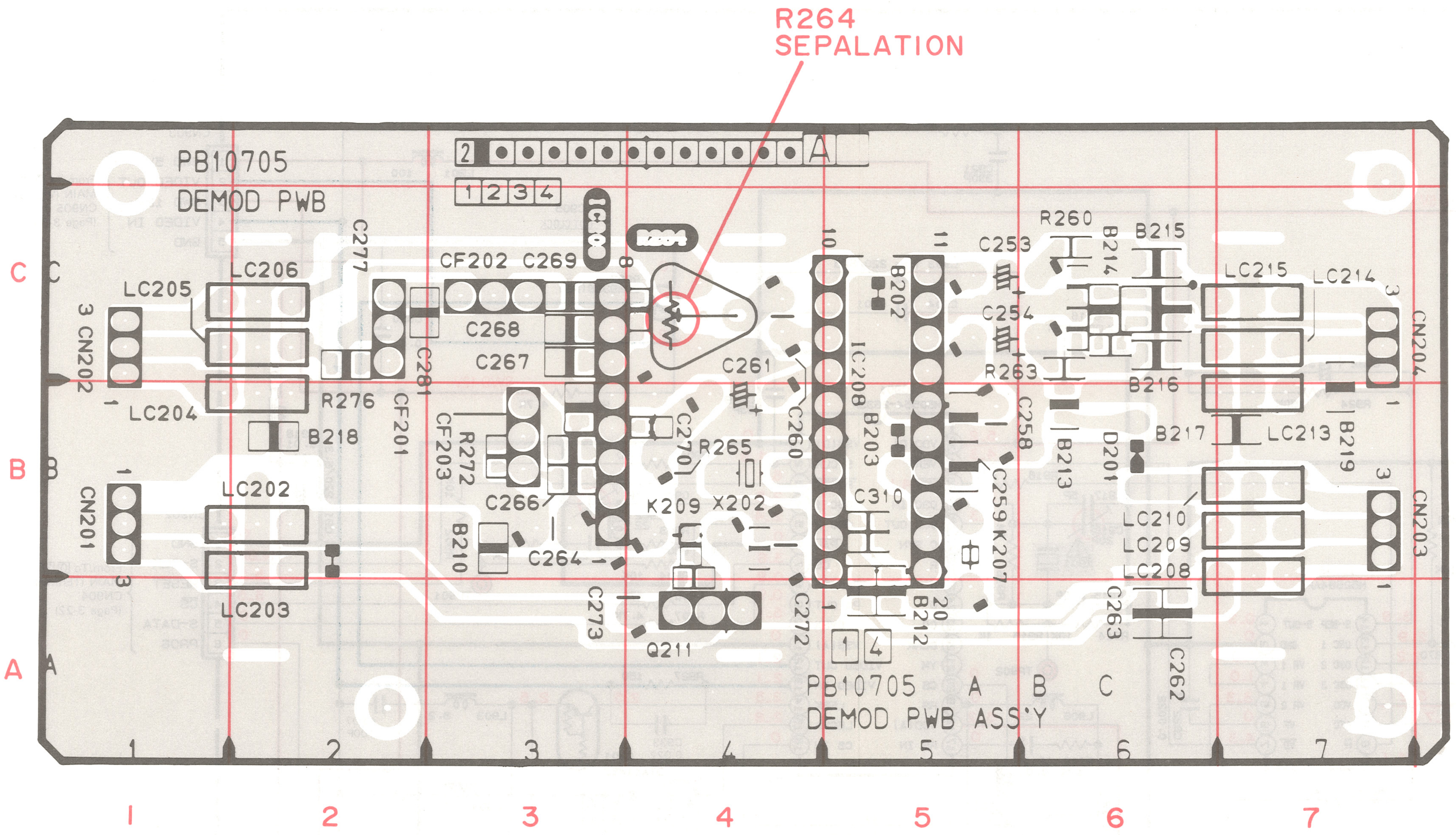
REF. No.	LOCATION
CAPACITOR	
C1	B-4A
C10	B-3B
C13	B-3B
C18	B-3B
C19	B-2B
C20	B-2C
C21	B-1C
C23	B-3C
C26	B-3C
C35	B-4C
C47	B-4B
C50	B-2B
C55	B-4B
C58	B-3C
C60	B-3A
C61	B-3B

3.23 DEMOD SCHEMATIC DIAGRAM



14 DEMOD
From 03 MAIN (TERMINAL) CN705 (Page 3-22)
CN201
NC
+BGND
SWD 12V
Q211 2SD1450S.T
R277 330
C273 22/16
C272 22/16
C271 0.047
R260 10K
R263 10K
R216 470
R215 470
R261 1.2K
R262 1.2K
Q206 FMA3
CN204
A.GND
L.OUT
R.OUT
To 03 (MAIN) AUDIO CN706 (Page 3-23)
C253 2.2/50
C254 2.2/50
C257 0.047
C258 22/16
C259 0.22
K207
IC209
μPC1391H
LPF
FM DEMOD
LIMITTER
SOURCE SELECTOR
AF SWITCH
control
DEMATRIX AND DE-EMPHASIS
clock
SUPPLY
POWER ON RESET
clock reset
control reset mute
FREQUENCY COUNTER
OSCILLATOR
I²C-BUS TRANSCEIVER
LOGIC
IC208
TDA8415
D201
R275 560
R276 470
CF201 5.74MHZ
CF202 5.74MHZ
C269 0.047
L205 0.22
L204 0.22
L206 0.22
C268 0.047
C267 0.047
R273 270
C266 22P
C265 0.047
C264 33/16
R272 390
CF203 5.74MHZ
STEREO SEPA
R264 10K
C260 2.2/50
C261 2.2/50
X202 10MHZ
C310 220P
C311 220P
R266 100
R267 100
R265 0
CN202
A.GND
2ND SIF IN
COMP IN
From 08 TUNER CN9 (Page 3-39)
CN203
SDA
SCL
MUTE
From/To 79 MECHACON/SERVO (MECHACON SECTION) CN609 (Page 3-67)
A
B
C
D
E
F
G
H
1
2
3
4
5

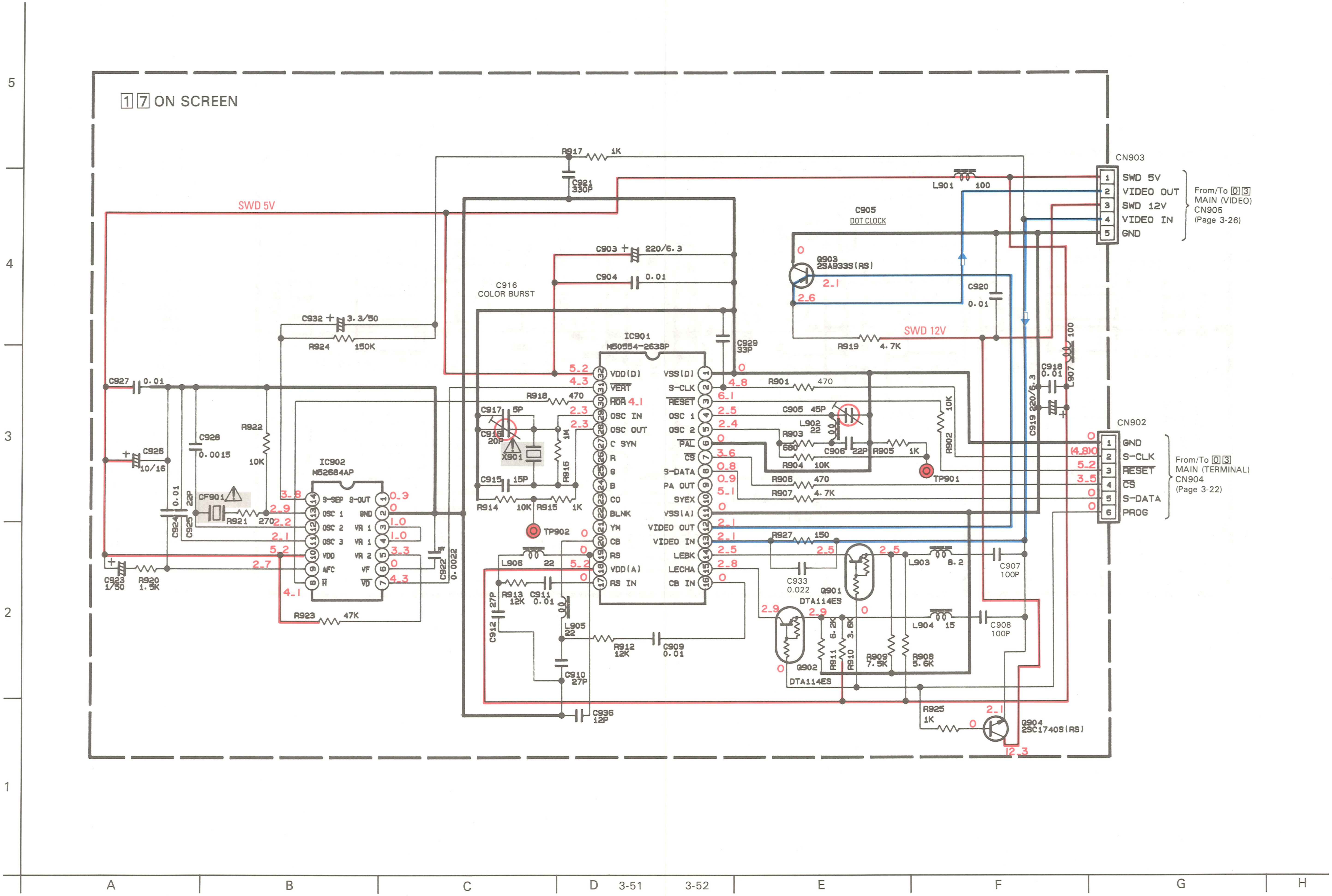
3.24 DEMOD CIRCUIT BOARD


R264
SEPALATION
PB10705
DEMOD PWB
PB10705 A B C
DEMOD PWB ASS'Y
IC301
R264
C277
CF202
C269
C268
C267
C281
CF201
CF203
R272
R276
LC205
LC206
LC204
LC202
LC203
B218
CN202
CN201
C266
B210
C264
C273
Q211
K209
X202
R265
C270
C261
C260
C272
IC208
B202
B203
B212
C310
C253
C254
R263
R260
B214
B215
B216
B217
C258
C259
K207
B213
D201
C263
C262
LC215
LC214
LC213
LC210
LC209
LC208
B219
CN204
CN203
A
B
C
1
2
3
4
5
6
7

• Location of SMC parts
1D — Location

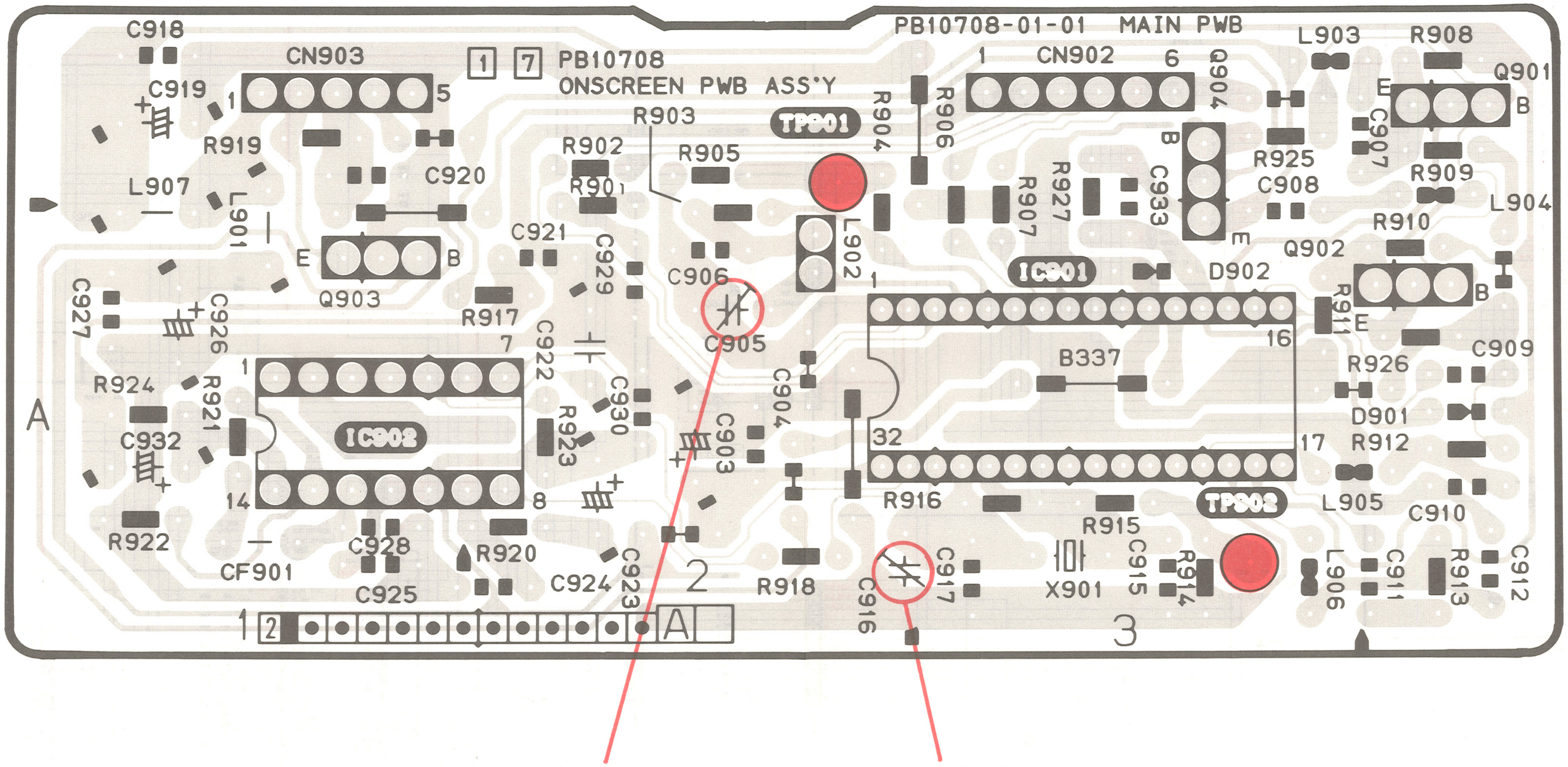
REF No.	LOCATION
TRANSISTOR	
Q206	6C
RESISTOR	
R260	6C
R261	6C
R262	6C
R263	6C
R265	4B
R266	5A
R267	5A
R272	3B
R273	3B
R275	4C
R276	2C
R277	4A
B215	6C
B216	6C
CAPACITOR	
C257	5B
C259	5B
C265	3B
C266	3B
C267	3C
C268	3C
C269	3C
C271	4B
C310	5B
C311	5B

3.25 ON SCREEN SCHEMATIC DIAGRAM



1 7 ON SCREEN
SWD 5V
SWD 12V
R917 1K
C921 330P
L901 100
C905 DOT CLOCK
C903 220/6.3
C904 0.01
C916 COLOR BURST
C932 3.3/50
R924 150K
IC901 M50554-263SP
C929 33P
Q903 2SA933S(RS)
C920 0.01
R919 4.7K
C918 0.01
C919 220/6.3
L907 100
VDD(D)
VERT
HOR
OSC IN
OSC OUT
C SYN
R
G
B
CO
BLNK
YM
CB
RS
VDD(A)
RS IN
VSS(D)
S-CLK
RESET
OSC 1
OSC 2
PAL
CS
S-DATA
PA OUT
SYEX
VSS(A)
VIDEO OUT
VIDEO IN
LEBK
LECHA
CB IN
R901 470
R918 470
C917 5P
C918 20P
X901
R916 1M
C915 15P
R914 10K
R915 1K
TP902
C905 45P
L902 22
R903 680
C906 22P
R905 1K
R904 10K
R902 10K
TP901
R906 470
R907 4.7K
R927 150
C933 0.022
Q901 DTA114ES
L903 8.2
C907 100P
L904 15
C908 100P
Q902 DTA114ES
R911 6.2K
R910 3.6K
R909 7.5K
R908 5.6K
R925 1K
Q904 2SC1740S(RS)
L906 22
R913 12K
C911 0.01
C912 27P
L905 22
R912 12K
C909 0.01
C910 27P
C936 12P
C927 0.01
C928 0.0015
R922 10K
C926 10/16
IC902 M52684AP
S-SEP
OSC 1
OSC 2
OSC 3
VDD
AFC
H
S-OUT
GND
VR 1
VR 1
VR 2
VF
VD
CF901
R921 270
C924 0.01
C925 22P
C922 0.0022
C923 1/50
R920 1.5K
R923 47K
CN903
1 SWD 5V
2 VIDEO OUT
3 SWD 12V
4 VIDEO IN
5 GND
From/To 0 3 MAIN (VIDEO) CN905 (Page 3-26)
CN902
1 GND
2 S-CLK
3 RESET
4 CS
5 S-DATA
6 PROG
From/To 0 3 MAIN (TERMINAL) CN904 (Page 3-22)
5.2
4.3
4.1
2.3
2.3
0
4.8
6.1
2.5
2.4
0
3.6
0.8
0.9
5.1
0
2.1
2.1
2.5
2.8
0
0
0
5.2
0
2.1
2.6
2.5
2.5
2.9
2.9
0
0
2.1
0
12.3
0
(4.8)0
5.2
3.5
0
0
3.8
2.9
2.2
2.1
5.2
2.7
4.1
0.9
0
1.0
1.0
3.3
0
4.3
5
4
3
2
1
A
B
C
D
E
F
G
H

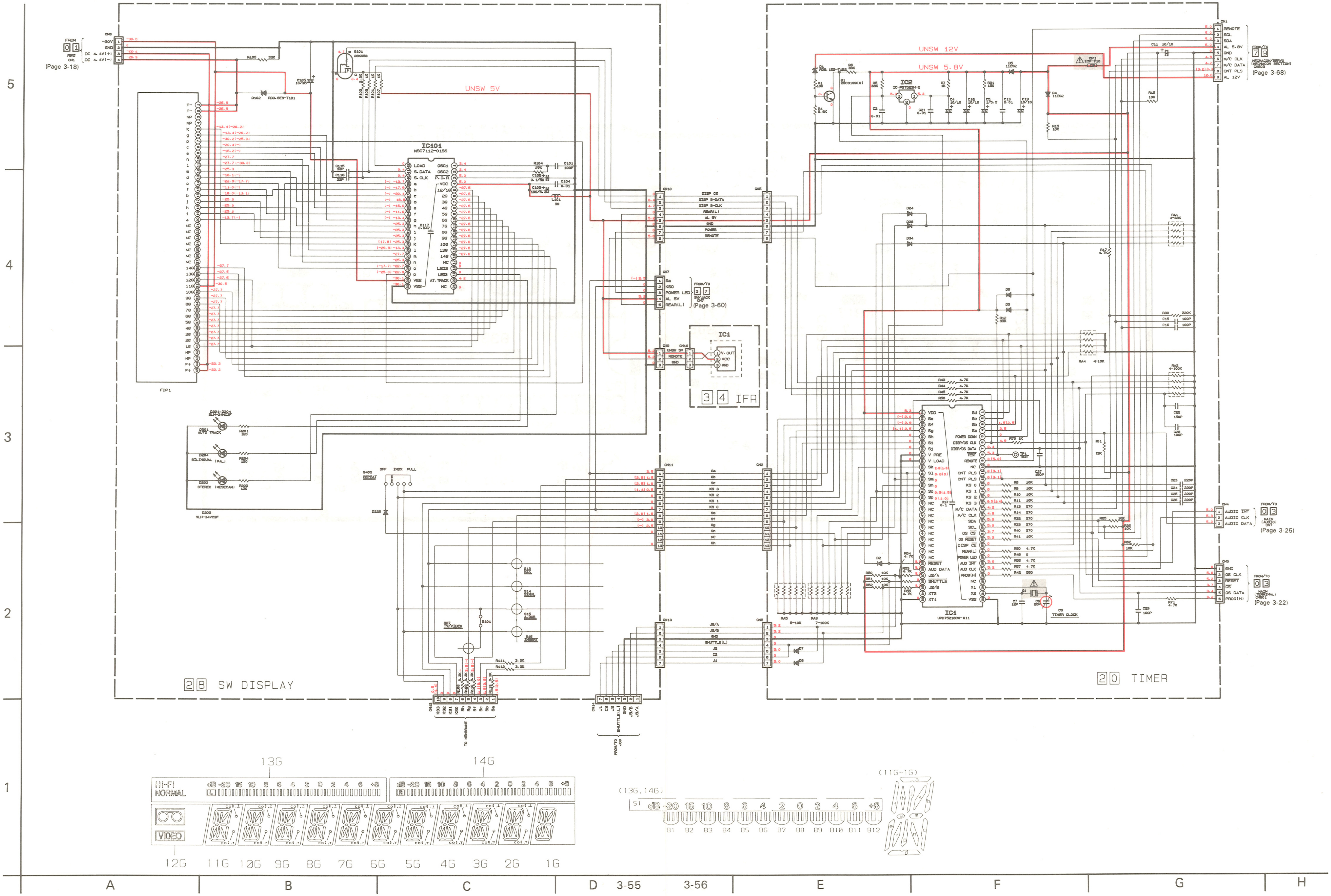
3.26 ON SCREEN CIRCUIT BOARD


PB10708-01-01 MAIN PWB
PB10708
ONSCREEN PWB ASS'Y
CN903
CN902
IC901
IC902
TP901
TP902
B337
Q901
Q902
Q903
Q904
D901
D902
X901
CF901
C918
C919
R919
L907
L901
C920
R903
R902
R901
R905
R904
R906
R907
R927
C933
R925
C908
L903
R908
C907
R909
L904
R910
C921
C929
C906
L902
C905
C922
R917
C927
C926
R924
R921
C932
R922
C928
C925
R920
C924
C923
R918
C916
C917
C915
R914
L906
C911
R913
C912
R911
R926
C909
R912
L905
C910
R915
R916
C904
C903
C930
R923
A
1
2
3
5
6
7
8
14
16
17
32
E
B

C905
DOT CLOCK

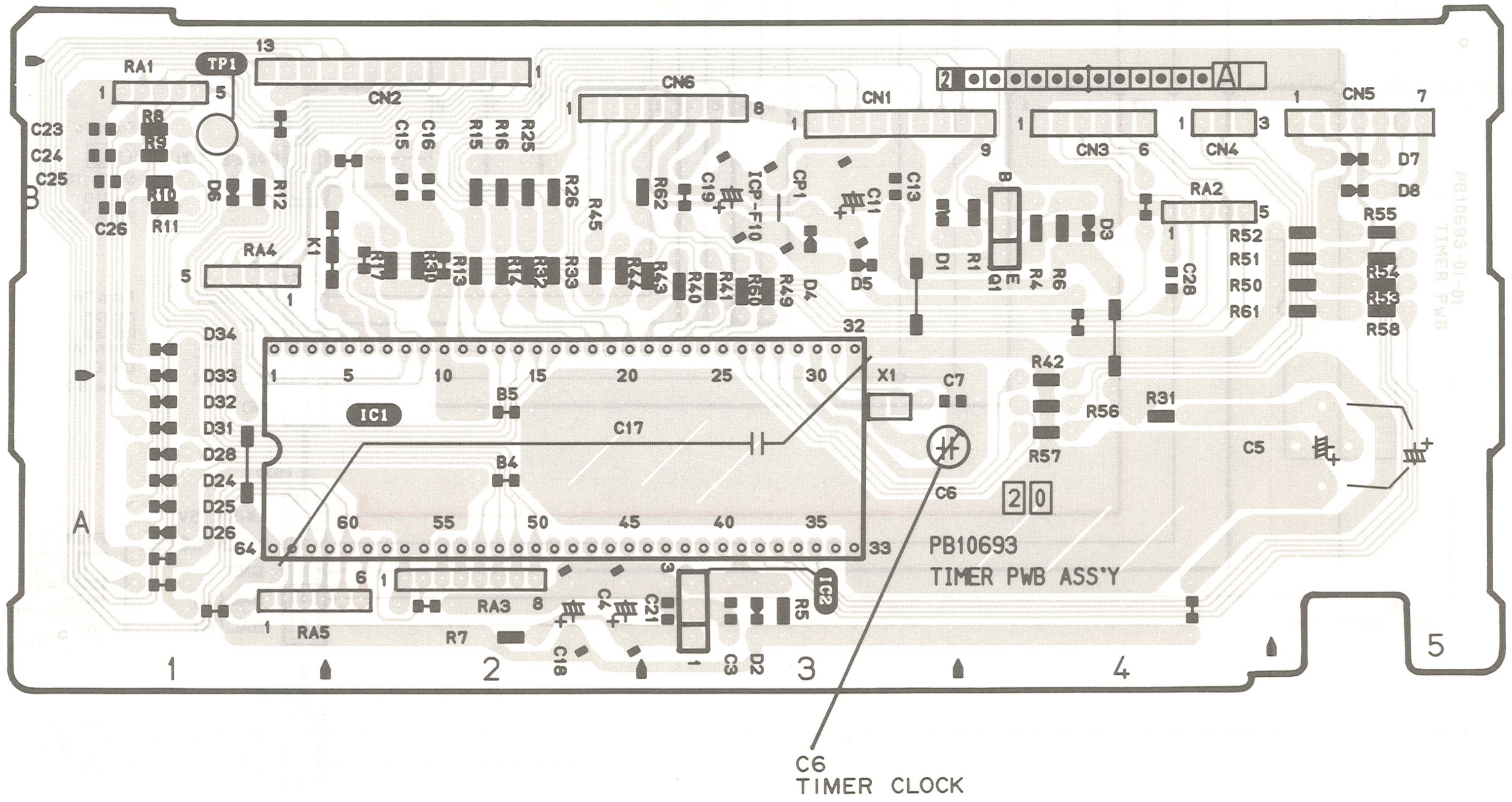
C916
COLOR BURST

3.27 TIMER & SW/DISPLAY SCHEMATIC DIAGRAMS

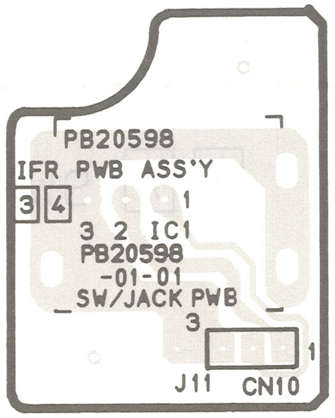

UNSW 12V
UNSW 5.8V
UNSW 5V
IC101
MSC7112-01SS
IC1
UPD75216CW-011
IC2
FDP1
28 SW DISPLAY
20 TIMER
34 IFR
13G
14G
12G
11G
10G
9G
8G
7G
6G
5G
4G
3G
2G
1G
Hi-Fi
NORMAL
VIDEO
dB -20 15 10 8 6 4 2 0 2 4 6 +8
B1 B2 B3 B4 B5 B6 B7 B8 B9 B10 B11 B12
(13G, 14G)
(11G~1G)
(Page 3-18)
(Page 3-60)
(Page 3-68)
(Page 3-25)
(Page 3-22)
A
B
C
D
E
F
G
H
1
2
3
4
5

3.28 TIMER, SW/DISPLAY & IFR CIRCUIT BOARDS

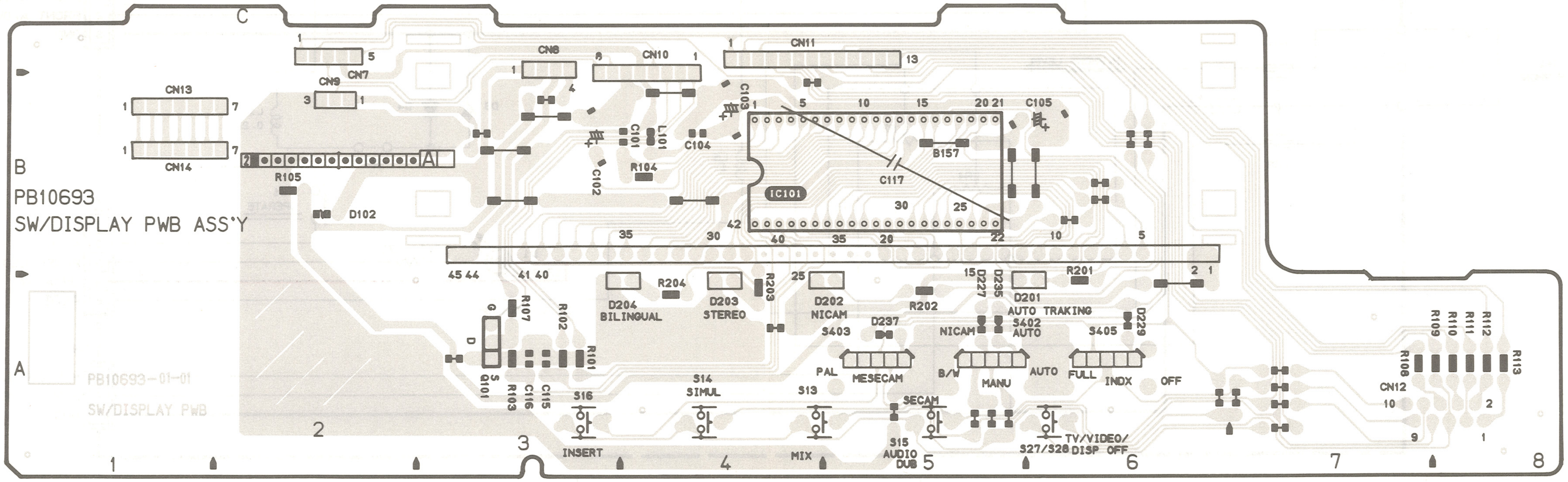
—TIMER—


PB10693
TIMER PWB ASS'Y
IC1
IC2
TP1
RA1
RA2
RA3
RA4
RA5
CN1
CN2
CN3
CN4
CN5
CN6
C5
C6
C7
C17
X1
B4
B5
R31
R42
R56
R57
K1
1
2
3
4
5
A
B
C6
TIMER CLOCK

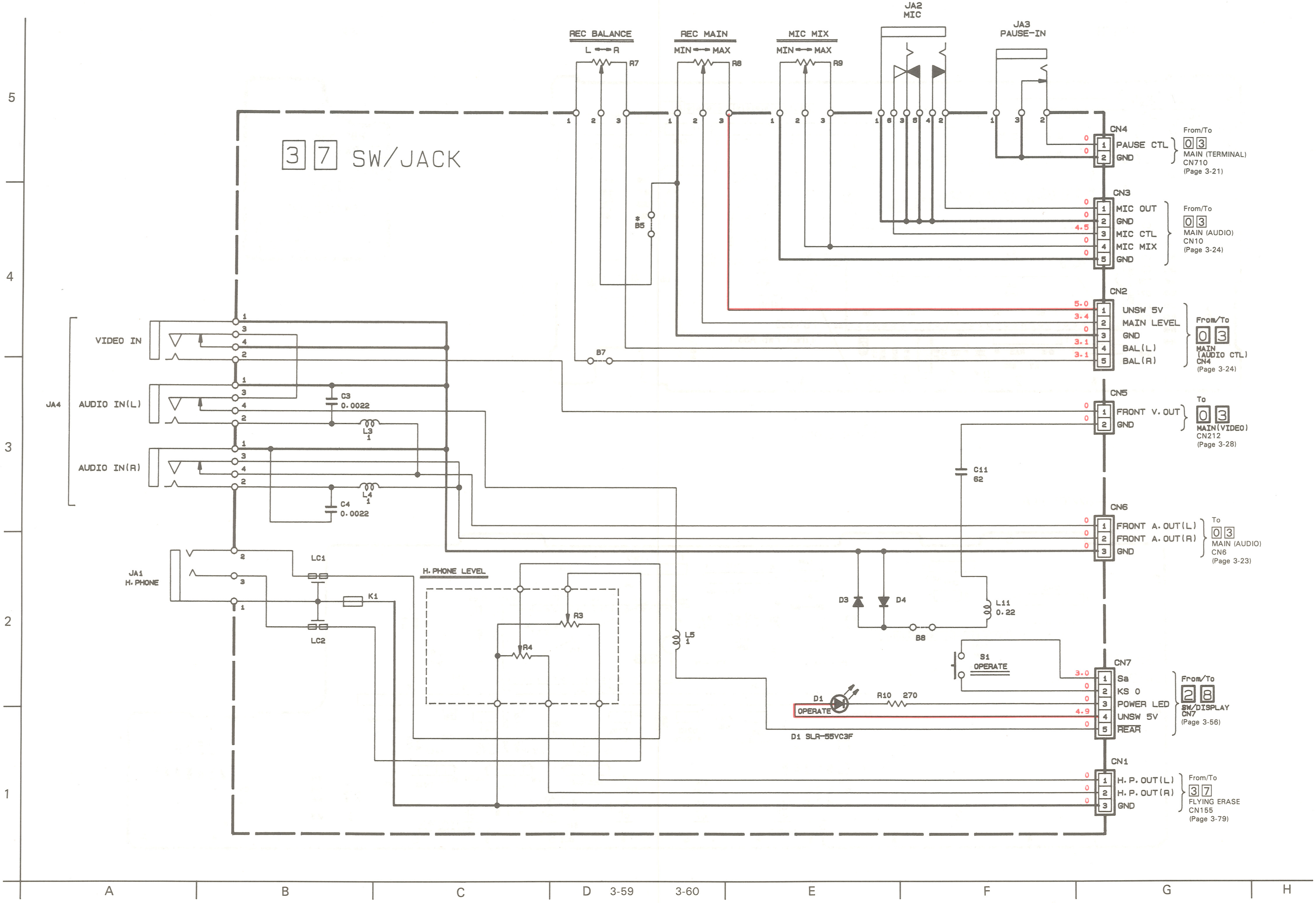
—IFR—


PB20598
IFR PWB ASS'Y
3 2 IC1
PB20598
-01-01
SW/JACK PWB
J11
CN10

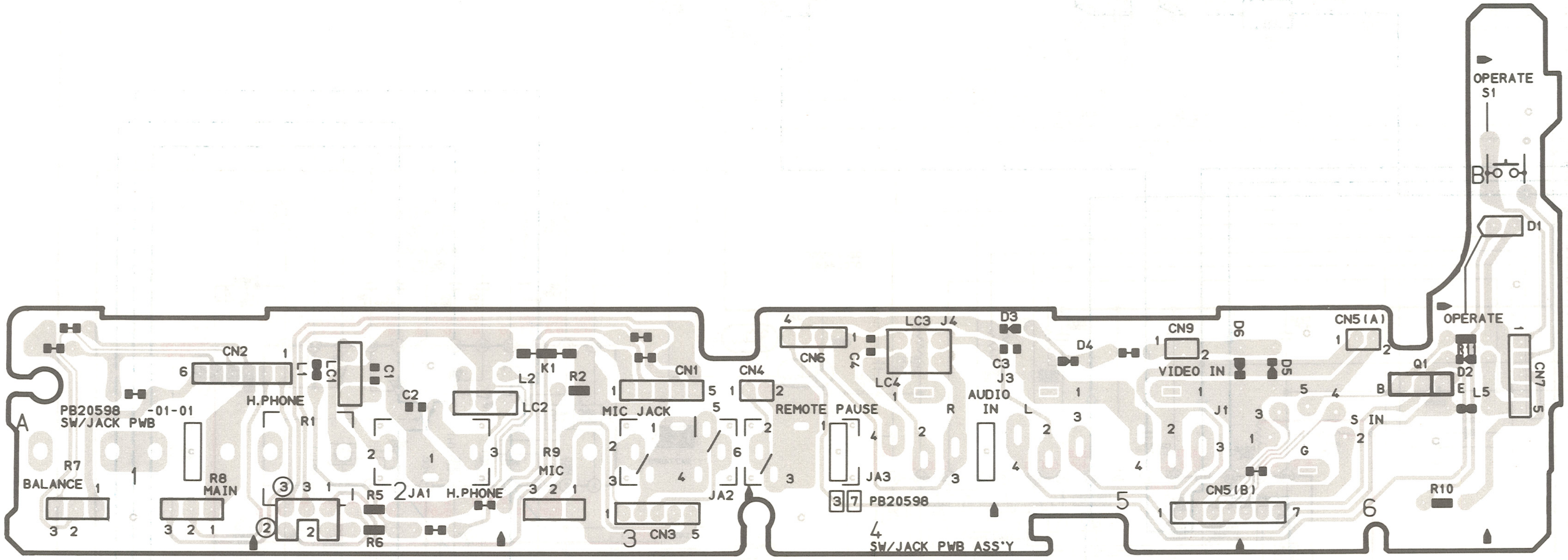
—SW/DISPLAY—


PB10693
SW/DISPLAY PWB ASS'Y
IC101
CN7
CN8
CN9
CN10
CN11
CN12
CN13
CN14
C101
C102
C103
C104
C105
C117
L101
B157
R104
R105
D102
D201
AUTO TRAKING
D202
NICAM
D203
STEREO
D204
BILINGUAL
S402
AUTO
S403
S405
S13
S14
SIMUL
S15
AUDIO DUB
S16
INSERT
MIX
PAL
MESECAM
SECAM
B/W
MANU
AUTO
FULL
INDX
OFF
S27/S28
TV/VIDEO/
DISP OFF
1
2
3
4
5
6
7
8
A
B
C

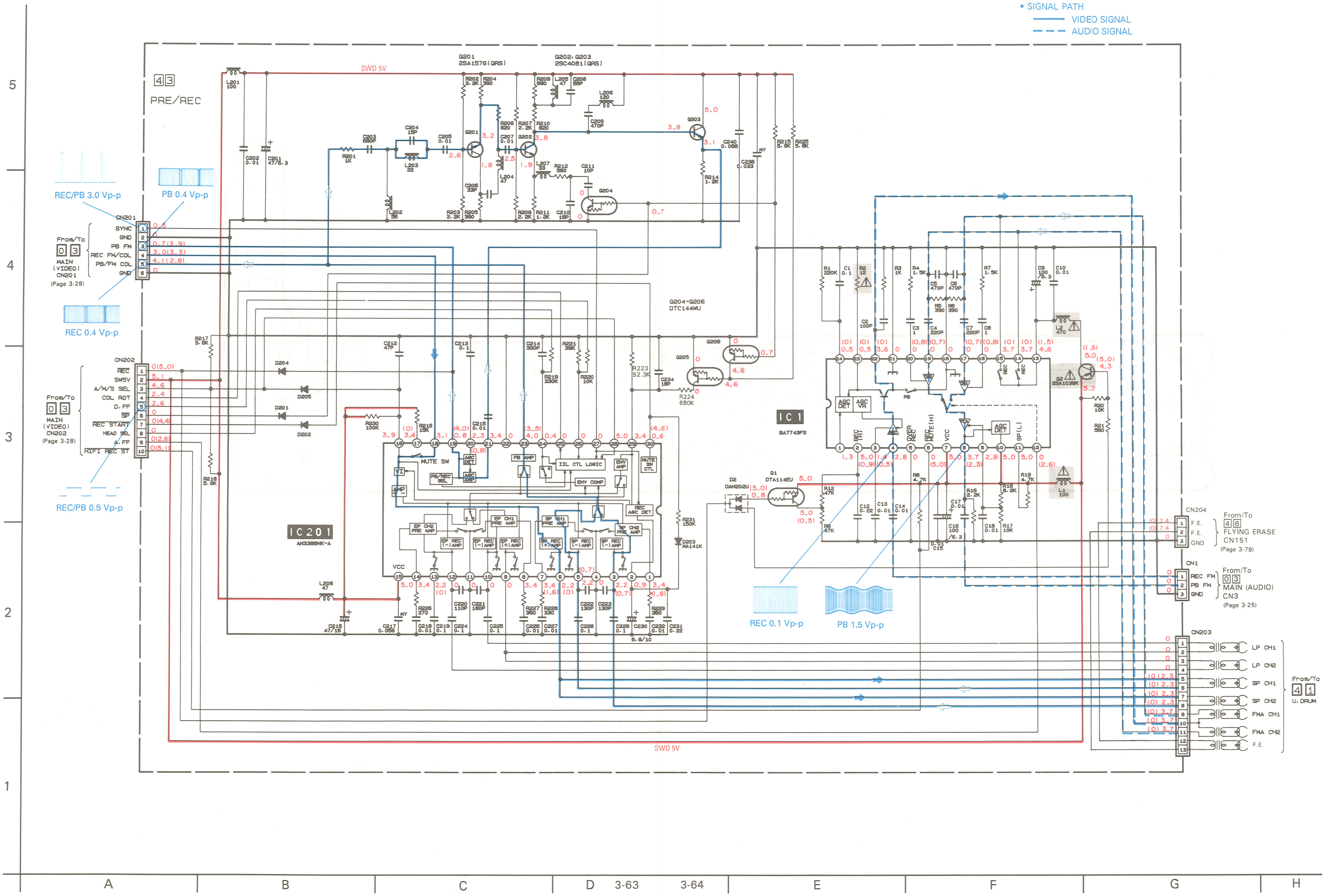
3.29 SW/JACK SCHEMATIC DIAGRAM


37 SW/JACK
REC BALANCE
L ↔ R
R7
REC MAIN
MIN ↔ MAX
R8
MIC MIX
MIN ↔ MAX
R9
JA2
MIC
JA3
PAUSE-IN
CN4
1 PAUSE CTL
2 GND
From/To
03
MAIN (TERMINAL)
CN710
(Page 3-21)
CN3
1 MIC OUT
2 GND
3 MIC CTL
4 MIC MIX
5 GND
From/To
03
MAIN (AUDIO)
CN10
(Page 3-24)
* B5
CN2
1 UNSW 5V
2 MAIN LEVEL
3 GND
4 BAL(L)
5 BAL(R)
5.0
3.4
0
3.1
3.1
4.5
From/To
03
MAIN
(AUDIO CTL)
CN4
(Page 3-24)
B7
VIDEO IN
JA4
AUDIO IN(L)
AUDIO IN(R)
C3
0.0022
L3
1
C4
0.0022
L4
1
CN5
1 FRONT V.OUT
2 GND
To
03
MAIN(VIDEO)
CN212
(Page 3-28)
C11
62
CN6
1 FRONT A.OUT(L)
2 FRONT A.OUT(R)
3 GND
To
03
MAIN (AUDIO)
CN6
(Page 3-23)
JA1
H.PHONE
LC1
LC2
K1
H.PHONE LEVEL
R3
R4
L5
1
D3
D4
B8
L11
0.22
S1
OPERATE
D1
OPERATE
R10 270
D1 SLR-55VC3F
CN7
1 Sa
2 KS 0
3 POWER LED
4 UNSW 5V
5 REAR
3.0
4.9
From/To
28
SW/DISPLAY
CN7
(Page 3-56)
CN1
1 H.P.OUT(L)
2 H.P.OUT(R)
3 GND
From/To
37
FLYING ERASE
CN155
(Page 3-79)
5
4
3
2
1
A
B
C
D
E
F
G
H

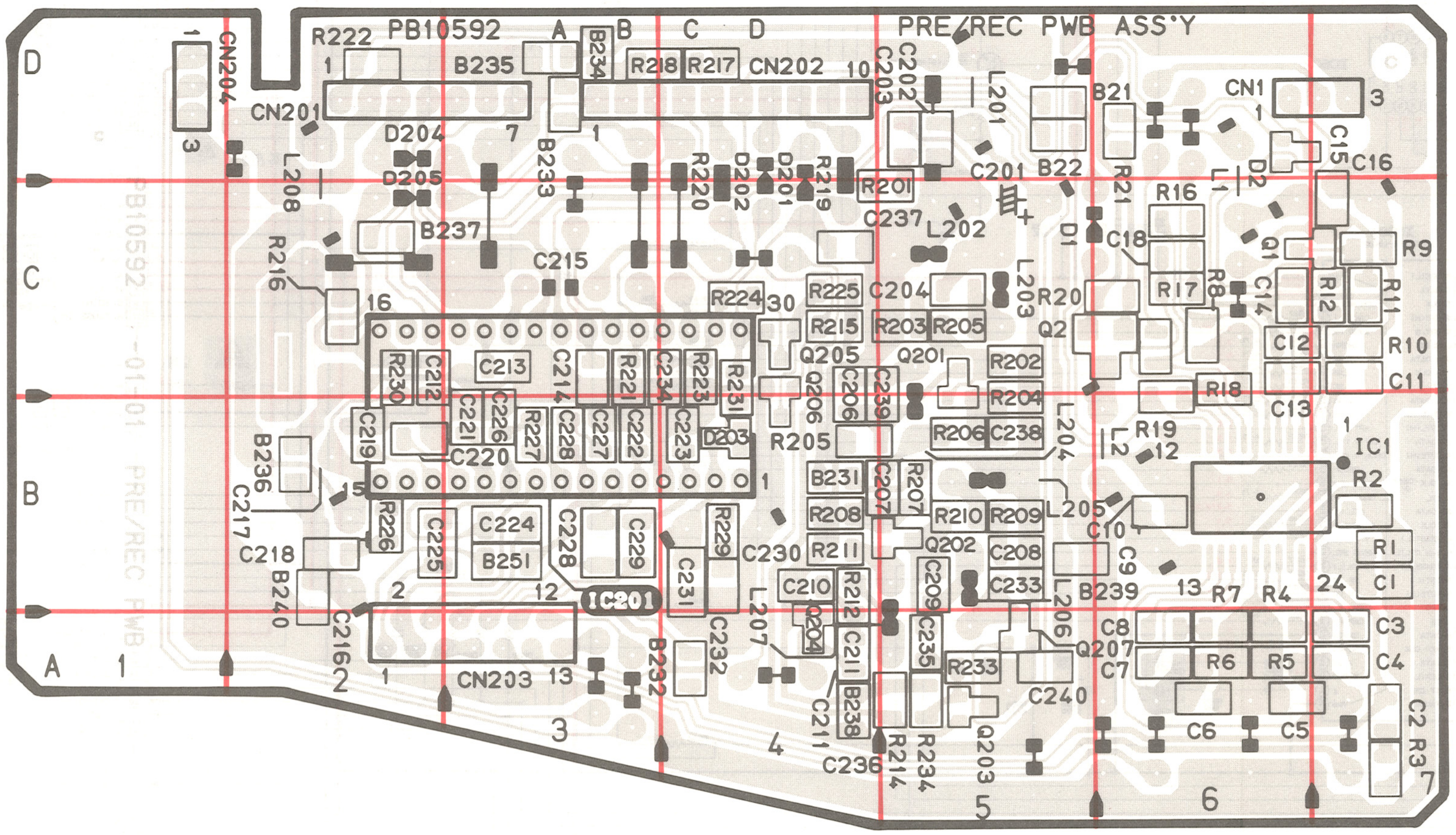
3.30 SW/JACK CIRCUIT BOARD


OPERATE
S1
B
D1
OPERATE
CN2
6
1
L1
LC1
C1
C2
L2
K1
R2
LC2
CN1
CN4
CN6
C4
LC3 J4
D3
C3
J3
LC4
D4
CN9
D6
D5
VIDEO IN
CN5(A)
Q1
D2
E
L5
CN7
PB20598 -01-01
SW/JACK PWB
A
H.PHONE
R1
R7
BALANCE
R8
MAIN
R5
R6
JA1
H.PHONE
R9
MIC
MIC JACK
JA2
REMOTE PAUSE
JA3
PB20598
AUDIO
IN
R
L
J1
S IN
G
CN5(B)
R10
CN3
SW/JACK PWB ASS'Y
1
2
3
4
5
6

3.31 PRE/REC SCHEMATIC DIAGRAM


• SIGNAL PATH
VIDEO SIGNAL
AUDIO SIGNAL
4 3
PRE/REC
SWD 5V
Q201 2SA1576(QRS)
Q202, Q203 2SC4081(QRS)
Q204-Q206 DTC144WU
IC 1 BA7743FS
IC 201 AN3386NK-A
Q1 DTA114EU
D2 DAN202U
Q2 2SA1036K
D203 MA141K
REC/PB 3.0 Vp-p
PB 0.4 Vp-p
REC 0.4 Vp-p
REC/PB 0.5 Vp-p
REC 0.1 Vp-p
PB 1.5 Vp-p
CN201
SYNC
GND
PB FM
REC FM/COL
PB/FM COL
GND
From/To 0 3 MAIN (VIDEO) CN201 (Page 3-28)
CN202
REC
SW5V
A/M/S SEL
COL ROT
D. FF
SP
REC START
HEAD SEL
A. FF
HIFI REC ST
From/To 0 3 MAIN (VIDEO) CN202 (Page 3-28)
CN204
F.E.
F.E.
GND
From/To 4 6 FLYING ERASE CN151 (Page 3-79)
CN1
REC FM
PB FM
GND
From/To 0 3 MAIN (AUDIO) CN3 (Page 3-25)
CN203
LP CH1
LP CH2
SP CH1
SP CH2
FMA CH1
FMA CH2
F.E.
From/To 4 1 U. DRUM
MUTE SW
PB/REC SEL
AGC DET
AGC AMP
PB AMP
IIL CTL LOGIC
ENV AMP
ENV COMP
MUTE SW CTL
REC AGC DET
EP CH2 PRE AMP
EP CH1 PRE AMP
SP CH1 PRE AMP
SP CH2 PRE AMP
EP REC (-) AMP
EP REC (+) AMP
SP REC (+) AMP
SP REC (-) AMP
VCC
AGC DET
AGC VR
PB
SP(L)
VCC
5
4
3
2
1
A
B
C
D
E
F
G
H

3.32 PRE/REC CIRCUIUT BOARD


PB10592
PRE/REC PWB ASS'Y
A
B
C
D
1
2
3
4
5
6
7
CN201
CN202
CN203
CN204
CN1
IC201
IC1
Q1
Q2
Q201
Q202
Q203
Q204
Q205
Q206
Q207
D1
D2
D201
D202
D203
D204
D205
L1
L2
L201
L202
L203
L204
L205
L206
L207
L208
R1
R2
R3
R4
R5
R6
R7
R8
R9
R10
R11
R12
R16
R17
R18
R19
R20
R21
R201
R202
R203
R204
R205
R206
R207
R208
R209
R210
R211
R212
R214
R215
R216
R217
R218
R219
R220
R221
R222
R223
R224
R225
R226
R227
R228
R229
R230
R231
R233
R234
C1
C2
C3
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C18
C201
C202
C203
C204
C205
C206
C207
C208
C209
C210
C211
C212
C213
C214
C215
C216
C217
C218
C219
C220
C221
C222
C223
C224
C225
C226
C227
C228
C229
C230
C231
C232
C233
C234
C235
C236
C237
C238
C239
C240
B21
B22
B232
B233
B234
B235
B236
B237
B238
B239
B240
B231
B251

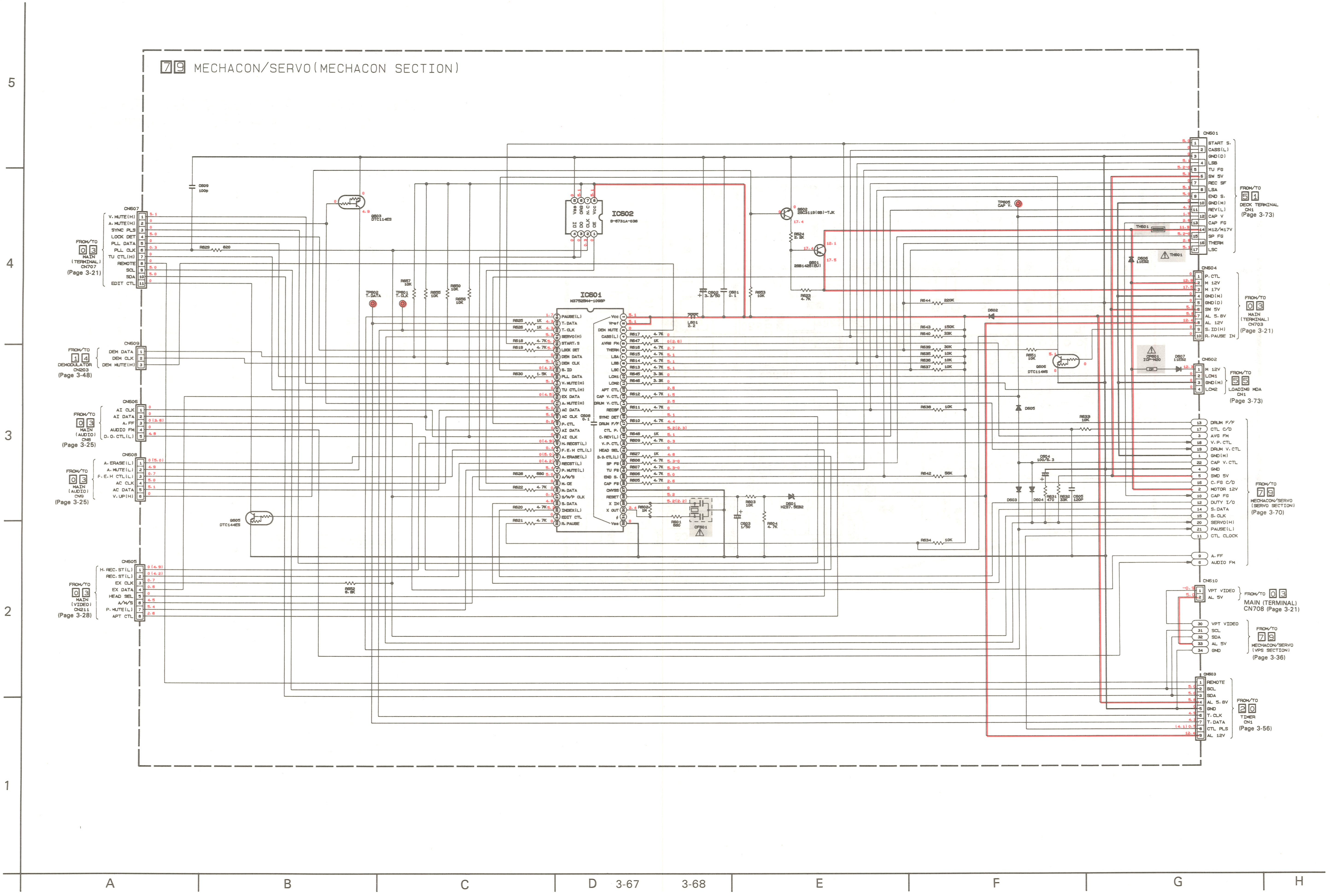
• Location of SMC parts
1D
Location

REF No.	LOCATION
IC	
IC1	1B
TRANSISTOR	
Q1	6C
Q2	5C
DIODE	
D2	6D
RESISTOR	
R1	7B
R2	7B
R3	7A
R4	6B
R5	6A
R6	6A
R7	6B
R8	6C
R9	7C
R12	7C
R16	6C
R17	6C
R18	6C
R19	6C
R20	6C
R21	6D
CAPACITOR	
C1	7B
C2	7A
C3	7A
C4	7A
C5	6A
C6	6A
C7	6A
C8	6A
C10	6B
C12	6C
C13	6C
C14	6C
C15	7D
C17	6C
C18	6C

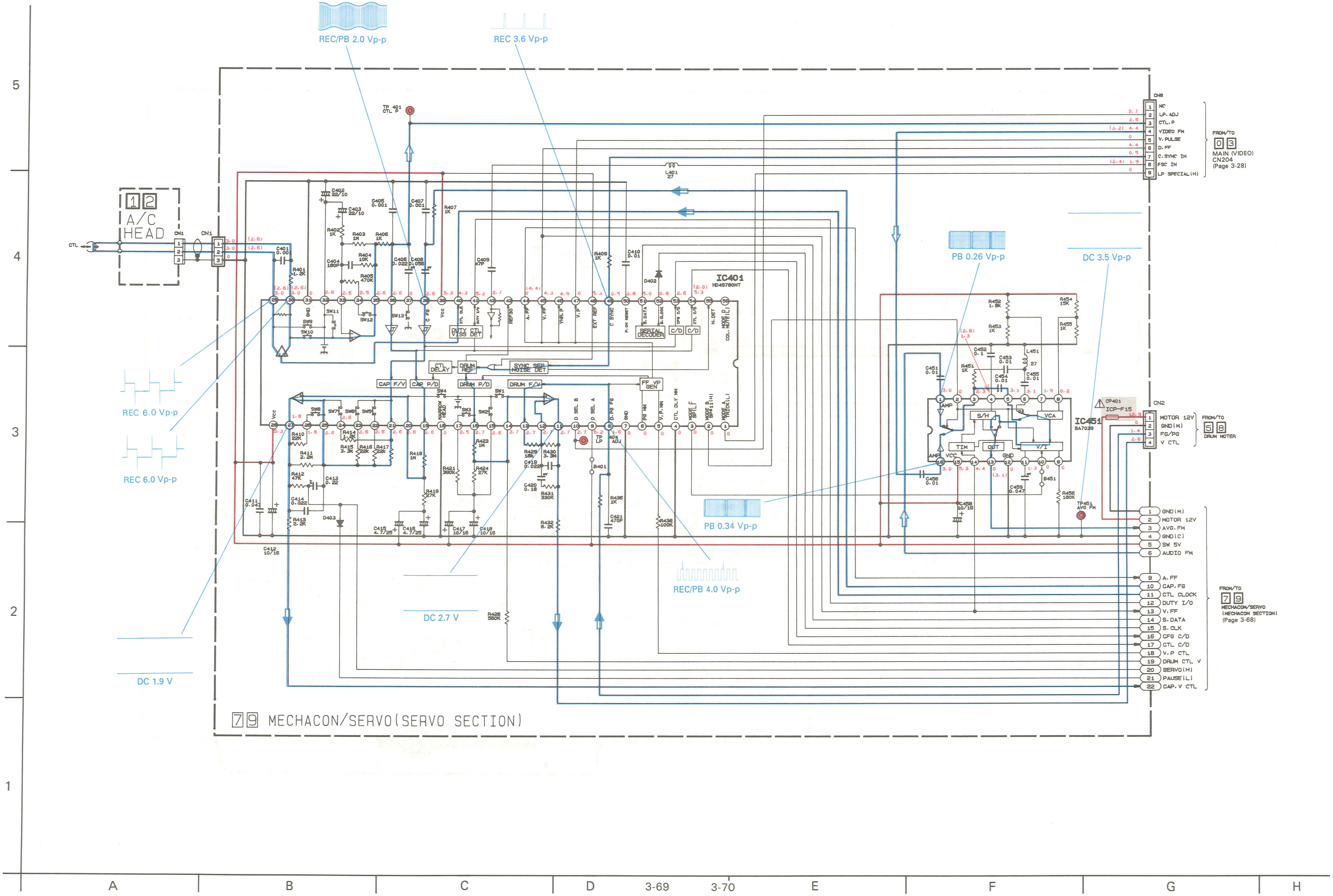
REF No.	LOCATION
TRANSISSOR	
Q201	5C
Q202	5B
Q203	5A
Q204	4A
Q205	4C
Q206	4C
DIODE	
D203	4B
RESISTOR	
R201	5C
R202	5C
R203	5C
R204	5C
R205	4B
R206	5B
R207	5B
R208	4B
R209	5B
R210	5B
R211	4B
R212	4B
R214	5A
R215	4C
R216	2C
R217	4D
R218	4D
R221	3C
R222	2D
R223	4C
R224	4C
R225	4C
R226	2B
R227	3B
R228	3B
R229	4B
R230	2C
R231	4C

REF No.	LOCATION
CAPACITOR	
C202	5D
C203	5D
C204	5C
C205	5C
C206	4C
C207	5B
C208	5B
C209	5B
C210	4B
C211	4A
C212	2C
C213	3C
C214	3C
C218	2B
C219	2B
C220	3B
C221	3B
C222	3B
C223	4B
C224	3B
C225	2B
C226	3B
C227	3B
C228	3B
C229	3B
C231	4B
C232	4A
C234	4C
C240	5A

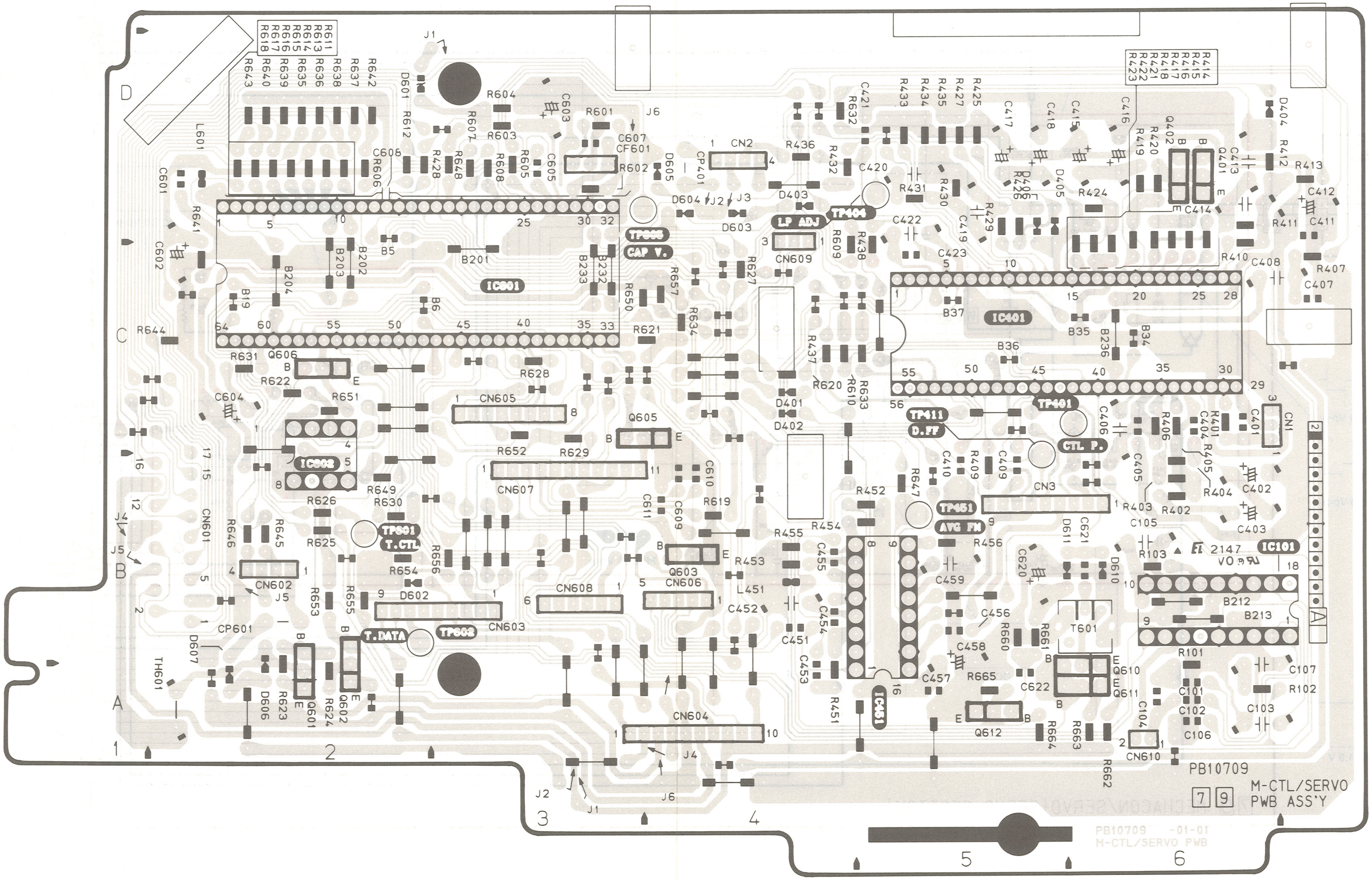
3.33 MECHACON SCHEMATIC DIAGRAM


79 MECHACON/SERVO(MECHACON SECTION)
CN607
V. MUTE(H) 1 5.1
A. MUTE(H) 2 0
SYNC PLS 3 0
LOCK DET 4 5.0
PLL DATA 5 0
PLL CLK 6 0.3
TU CTL(H) 7 0
REMOTE 8 0
SCL 9 5.0
SDA 10 5.0
EDIT CTL 11 0
FROM/TO 03 MAIN (TERMINAL) CN707 (Page 3-21)
CN609
DEM DATA 1
DEM CLK 2
DEM MUTE(H) 3
FROM/TO 14 DEMODULATOR CN203 (Page 3-48)
CN606
AI CLK 1 0
AI DATA 2 0
A. FF 3 0(3.6)
AUDIO FM 4 0
D. O. CTL(L) 5 4.8
FROM/TO 03 MAIN (AUDIO) CN8 (Page 3-25)
CN608
A. ERASE(L) 1 0(5.0)
A. MUTE(L) 2 4.9
F. E. H CTL(L) 3 0.7
AC CLK 4 5.0
AC DATA 5 5.1
V. UP(H) 6 0
FROM/TO 03 MAIN (AUDIO) CN9 (Page 3-25)
CN605
H. REC. ST(L) 1 0(4.9)
REC. ST(L) 2 0(4.2)
EX CLK 3 0.7
EX DATA 4 0.6
HEAD SEL 5 0
A/M/S 6 4.5
P. MUTE(L) 7 5.4
APT CTL 8 2.6
FROM/TO 03 MAIN (VIDEO) CN211 (Page 3-28)
C609 100p
R629 820
Q603 DTC114ES
Q605 DTC144ES
R652 6.8K
TP602 T. DATA
TP601 T. CLK
R657 10K
R655 10K
R650 10K
R656 10K
IC602
S-6731A-038
Vss ORG N. C Vcc
DI DO CLK CE
IC601
M37525M4-109SP
PAUSE(L) 64 1.7
T. DATA 63 4.3 R625 1K
T. CLK 62 4.3 R626 1K
SERVO(H) 61 5.3
START. S 60 5.1 R618 4.7K
LOCK DET 59 5.0 R619 4.7K
DEM DATA 58 0
DEM CLK 57 5.1
S. ID 56 0(4.3)
PLL DATA 55 0 R630 1.5K
V. MUTE(H) 54 5.1
TU CTL(H) 53 0
EX DATA 52 0(4.5)
A. MUTE(H) 51 0
AC DATA 50 5.0
AC CLK 49 5.0
P. CTL 48 0.2
AI DATA 47 0
AI CLK 46 0
H. RECST(L) 45 0(4.9)
F. E. H CTL(L) 44 0.4
A. ERASE(L) 43 0(5.0)
RECST(L) 42 0(4.2)
P. MUTE(L) 41 5.4
A/M/S 40 5.0 R628 680
M. CE 39 0
M. DATA 38 0 R622 4.7K
S/M/P CLK 37 0.3
S. DATA 36 4.8
INDEX(L) 35 5.2 R620 4.7K
EDIT CTL 34 0
R. PAUSE 33 0 R621 4.7K
C608 0.1
Vcc 1 5.1
Vref 2 5.1
DEM MUTE 3 0
CASS(L) 4 R617 4.7K 0
AVRS FM 5 R647 1K 0(2.6)
THERM 6 R616 4.7K 2.7
LSA 7 R615 4.7K 5.1
LSB 8 R614 4.7K 5.1
LSC 9 R613 4.7K 5.1
LCM1 10 R645 3.3K 0
LCM2 11 R646 3.3K 0
APT CTL 12 2.6
CAP V. CTL 13 R612 4.7K 1.5
DRUM V. CTL 14 2.5
RECSF 15 R611 4.7K 0
SYNC DET 16 5.1
DRUM F/F 17 R610 4.7K 4.4
CTL P. 18 5.2(2.3)
C. REV(L) 19 R648 1K 5.1
V. P. CTL 20 R609 4.7K 0.3
HEAD SEL 21 0
D. O. CTL(L) 22 R627 1K 4.8
SP FG 23 R608 4.7K 5.3-0
TU FG 24 R607 4.7K 5.3-0
END S. 25 R606 4.7K 5.0
CAP FG 26 R605 4.7K 2.6
CNVSS 27 0
RESET 28 5.2
X IN 29 5.2(2.2)
X OUT 30 2.4
ϕ 31
Vss 32 0
R602 1M
R601 680
CF601
L601 2.2
C602 3.3/50
C601 0.1
R653 10K
R603 10K
C603 1/50
R604 4.7K
D601 HZS7.5EB2
Q602 2SC3119(SB)-TJK
R624 2.2K
Q601 2SB1425(EU)
R623 4.7K
17.4
12.1
17.5
TP605 CAP V.
R644 220K
D602
R643 150K
R640 33K
R639 30K
R635 10K
R636 10K
R637 10K
R651 10K
Q606 DTC114WS
R638 10K
D605
R633 10K
C604 100/6.3
R642 56K
D603
D604
R631 470
R632 33K
C605 120P
R634 10K
TH601
D606 11ES2
CP601 ICP-N20
D607 11ES2
CN601
START S. 1 5.0
CASS(L) 2 0
GND(D) 3 0
LSB 4 5.1
TU FG 5 5.2-0
SW 5V 6 5.3
REC SF 7 0
LSA 8 5.1
END S. 9 5.0
GND(M) 10 0
REV(L) 11 4.7
CAP V 12 1.5
CAP FG 13 2.6
M12/M17V 14 11.9
SP FG 15 5.2-0
THERM 16 2.8
LSC 17 5.1
FROM/TO 51 DECK TERMINAL CN1 (Page 3-73)
CN604
P. CTL 1 0
M 12V 2 12.9
M 17V 3 17.5
GND(M) 4 0
GND(D) 5 0
SW 5V 6 5.3
AL 5.8V 7 5.8
AL 12V 8 12.4
S. ID(H) 9 0
R. PAUSE IN 10 0
FROM/TO 03 MAIN (TERMINAL) CN703 (Page 3-21)
CN602
M 12V 1 12.3
LCM1 2 0
GND(M) 3 0
LCM2 4 0
FROM/TO 55 LOADING MDA CN1 (Page 3-73)
13 DRUM F/F
17 CTL C/D
3 AVG FM
18 V. P. CTL
19 DRUM V. CTL
1 GND(M)
22 CAP V. CTL
4 GND
5 SWD 5V
16 C. FG C/D
2 MOTOR 12V
10 CAP FG
12 DUTY I/O
14 S. DATA
15 S. CLK
20 SERVO(H)
21 PAUSE(L)
11 CTL CLOCK
9 A. FF
6 AUDIO FM
FROM/TO 79 MECHACON/SERVO (SERVO SECTION) (Page 3-70)
CN610
VPT VIDEO 1 -0.9
AL 5V 2 5.0
FROM/TO 03 MAIN (TERMINAL) CN708 (Page 3-21)
30 VPT VIDEO
31 SCL
32 SDA
33 AL 5V
34 GND
FROM/TO 79 MECHACON/SERVO (VPS SECTION) (Page 3-36)
CN603
REMOTE 1
SCL 2 5.0
SDA 3 5.0
AL 5.8V 4 5.8
GND 5 0
T. CLK 6 4.9
T. DATA 7 4.3
CTL PLS 8 (4.1) 0.5
AL 12V 9 12.4
FROM/TO 20 TIMER CN1 (Page 3-56)
5
4
3
2
1
A
B
C
D
E
F
G
H

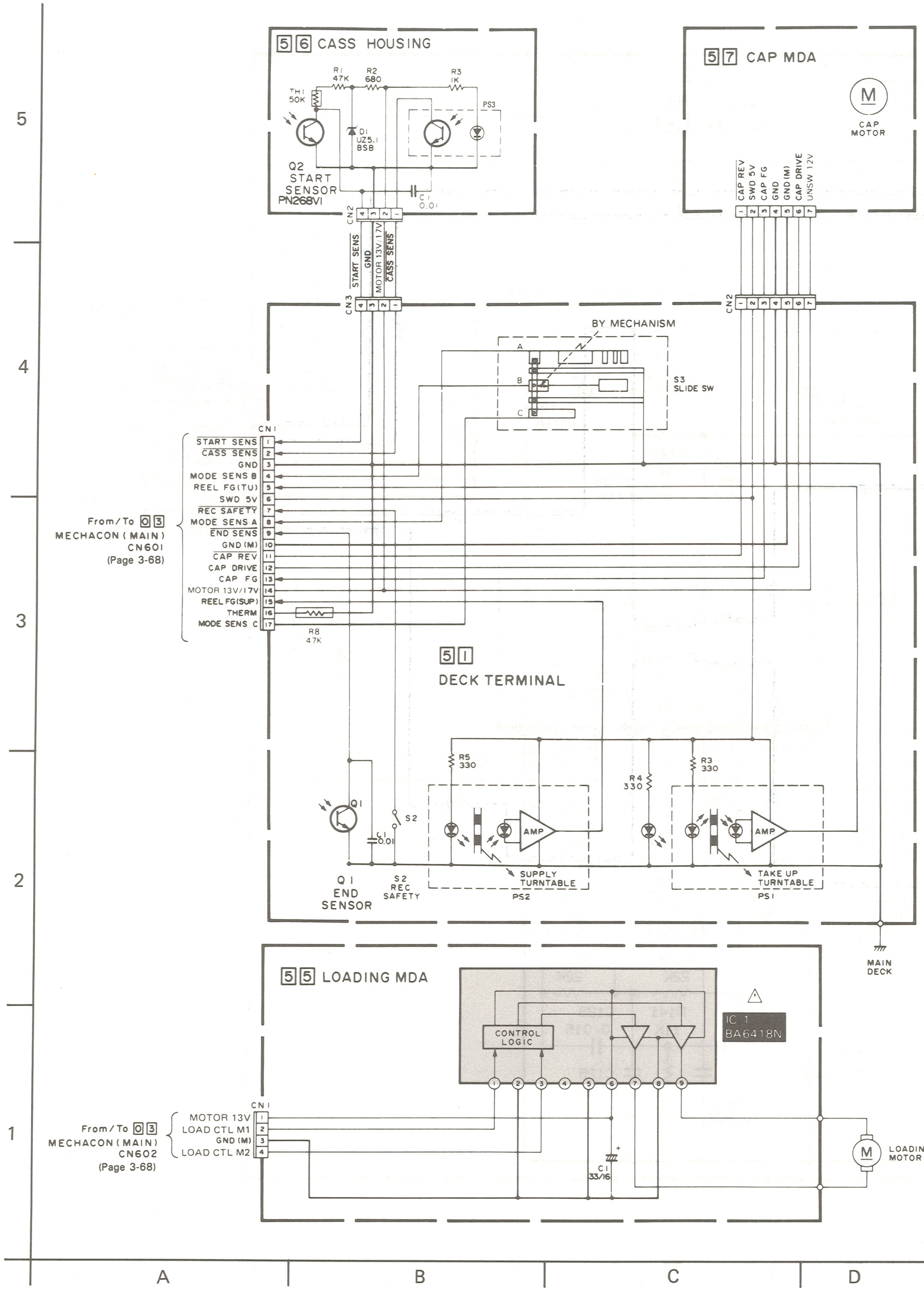
3.34 SERVO SCHEMATIC DIAGRAM


REC/PB 2.0 Vp-p
REC 3.6 Vp-p
PB 0.26 Vp-p
DC 3.5 Vp-p
REC 6.0 Vp-p
REC 6.0 Vp-p
PB 0.34 Vp-p
REC/PB 4.0 Vp-p
DC 2.7 V
DC 1.9 V
1 2 A/C HEAD
CTL
CN1
TP 401 CTL P
IC401
HD49780NT
IC451
BA7039
L401 27
D402
D403
C401 0.001
C402 22/10
C403 22/10
C404 180P
C405 0.001
C406 0.022
C407 0.001
C408 0.056
C409 47P
C410 0.01
C411 0.047
C412 10/16
C413 0.22
C414 0.022
C415 4.7/25
C416 4.7/25
C417 10/16
C418 10/16
C419 0.022
C420 0.18
C421 470P
R401 1.2K
R402 1K
R403 1M
R404 10K
R405 470K
R406 1K
R407 1K
R409 1K
R410 22K
R411 2.2M
R412 47K
R413 2.2K
R414 3.3K
R415 3.3K
R416 22K
R417 22K
R418 1M
R419 27K
R421 390K
R423 1M
R424 27K
R428 560K
R429 15K
R430 3.3K
R431 330K
R432 8.2K
R436 1K
R438 100K
B401
SW1
SW2
SW3
SW4
SW5
SW6
SW7
SW8
SW9
SW10
SW11
SW12
SW13
DUTY CTL V.SS DET
SERIAL DECODER
C/D
C/D
CTL DELAY
DRUM REF
SYNC SEP NOISE DET
CAP F/V
CAP P/D
DRUM P/D
DRUM F/V
FF VP GEN
GND
Vcc
C FG
CTL CLK
DUTY I/O
REF30
A.FF
V.FF
YNR.P
V.P
EXT REF
C.SYNC
P.ON RESET
S.DATA
S.CLOCK
CFG C/D
CTL C/D
N.DET
MODE D COL.MUTE(L)
NARROW HEAD
D SEL B
D SEL A
TP LP
404 ADJ
D.PB FG
PB MM
V.P. MM
CTL DLY MM
MODE C SP(L)
MODE B SP#1(H)
MODE A TRICK(L)
C451 0.01
C452 0.1
C453 0.01
C454 0.01
C455 0.01
C456 0.01
C458 10/16
C459 0.047
R451 1K
R452 1.8K
R453 1K
R454 15K
R455 1K
R456 180K
L451 27
B451
AMP
S/H
VCA
TIM
OUT
V/I
VCC
GND
CP401 ICP-F15
TP451 AVG FM
CN8
1 NC
2 LP.ADJ
3 CTL.P
4 VIDEO FM
5 V.PULSE
6 D.FF
7 C.SYNC IN
8 FSC IN
9 LP SPECIAL(H)
FROM/TO
0 3
MAIN (VIDEO) CN204
(Page 3-28)
CN2
1 MOTOR 12V
2 GND(H)
3 FG/PG
4 V CTL
FROM/TO
5 8
DRUM MOTOR
1 GND(M)
2 MOTOR 12V
3 AVG.FM
4 GND(C)
5 SW 5V
6 AUDIO FM
9 A.FF
10 CAP.FG
11 CTL CLOCK
12 DUTY I/O
13 V.FF
14 S.DATA
15 S.CLK
16 CFG C/D
17 CTL C/D
18 V.P CTL
19 DRUM CTL V
20 SERVO(H)
21 PAUSE(L)
22 CAP.V CTL
FROM/TO
7 9
MECHACON/SERVO
(MECHACON SECTION)
(Page 3-68)
7 9 MECHACON/SERVO(SERVO SECTION)
5
4
3
2
1
A
B
C
D
E
F
G
H

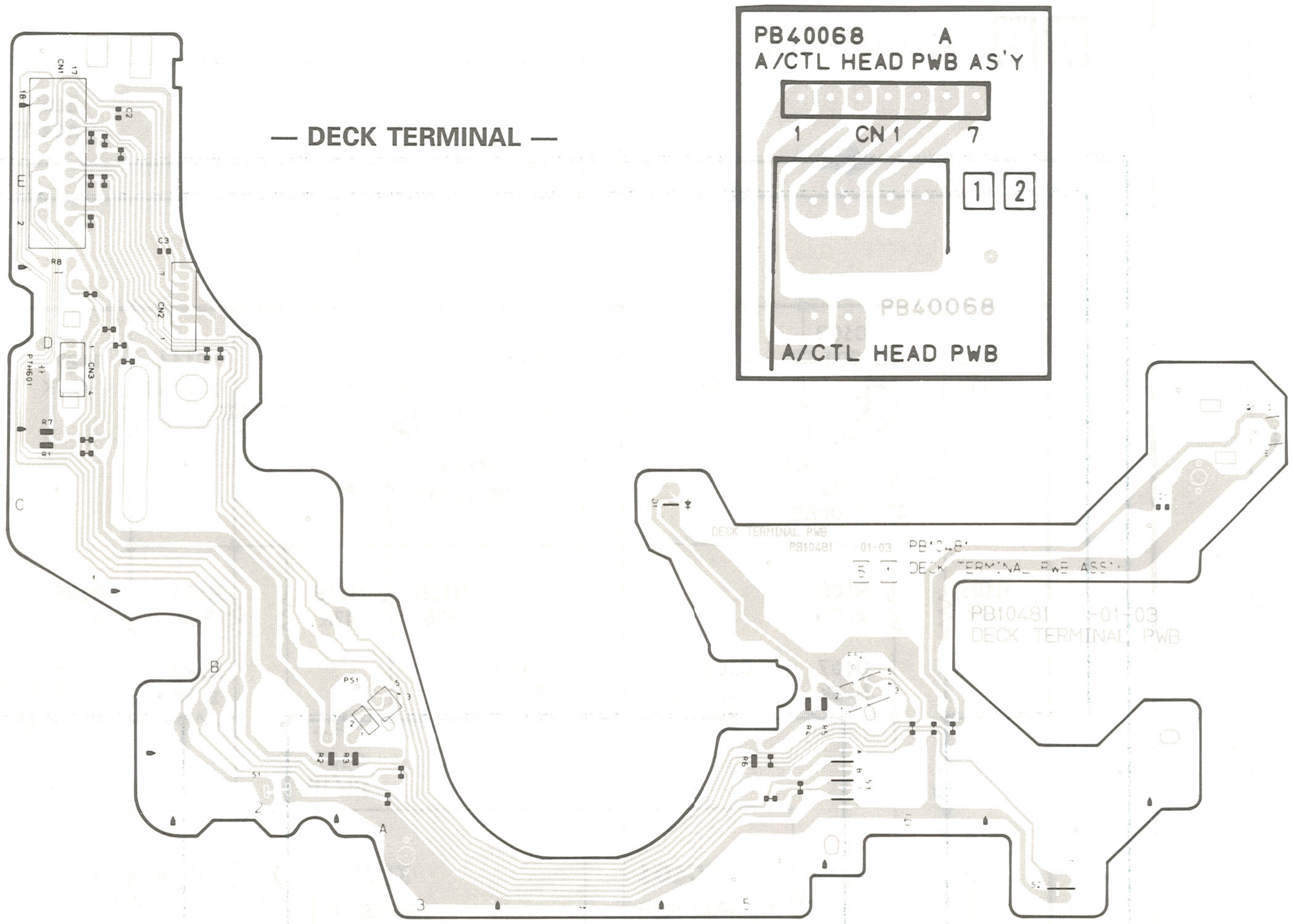
3.35 MECHACON/SERVO CIRCUIT BOARD


IC601
IC401
IC101
IC602
IC451
TP601
T.CTL
TP602
T.DATA
TP603
CAP V.
TP404
LP ADJ
TP411
D.FF
TP401
CTL P.
TP451
AVG FM
CN2
CN609
CN605
CN607
CN608
CN606
CN603
CN604
CN602
CN601
CN3
CN1
CN610
CP601
CP401
T601
Q601
Q602
Q603
Q605
Q606
Q610
Q611
Q612
Q401
Q402
CF601
L601
L451
TH601
J1
J2
J3
J4
J5
J6
PB10709
7 9
M-CTL/SERVO
PWB ASS'Y
PB10709 -01-10
M-CTL/SERVO PWB
2147
A
B
C
D
1
2
3
4
5
6

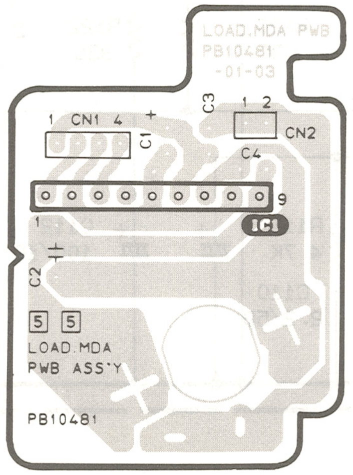
3.36 DECK TERMINAL, LOADING MDA, CAPSTAN MDA & CASSETTE HOUSING SCHEMATIC DIAGRAMS

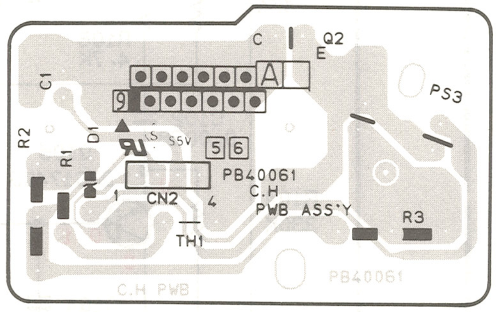

5 6 CASS HOUSING
R1 47K
R2 680
R3 1K
TH1 50K
D1 UZ5.1 BSB
PS3
Q2 START SENSOR PN268VI
C1 0.01
CN2
START SENS
GND
MOTOR 13V/17V
CASS SENS
5 7 CAP MDA
M
CAP MOTOR
CAP REV
SWD 5V
CAP FG
GND
GND (M)
CAP DRIVE
UNSW 12V
CN3
CN2
BY MECHANISM
A
B
C
S3 SLIDE SW
CN1
START SENS
CASS SENS
GND
MODE SENS B
REEL FG(TU)
SWD 5V
REC SAFETY
MODE SENS A
END SENS
GND (M)
CAP REV
CAP DRIVE
CAP FG
MOTOR 13V/17V
REEL FG(SUP)
THERM
MODE SENS C
From/To 0 3 MECHACON (MAIN) CN601 (Page 3-68)
R8 47K
5 1 DECK TERMINAL
R5 330
R4 330
R3 330
Q1
S2
C1 0.01
AMP
AMP
SUPPLY TURNTABLE PS2
TAKE UP TURNTABLE PS1
Q1 END SENSOR
S2 REC SAFETY
MAIN DECK
5 5 LOADING MDA
CONTROL LOGIC
IC 1 BA6418N
CN1
MOTOR 13V
LOAD CTL M1
GND (M)
LOAD CTL M2
From/To 0 3 MECHACON (MAIN) CN602 (Page 3-68)
C1 33/16
M
LOADING MOTOR
5
4
3
2
1
A
B
C
D

3.37 DECK TERMINAL, LOADING MDA, CASSETTE HOUSING & A/C HEAD CIRCUIT BOARDS

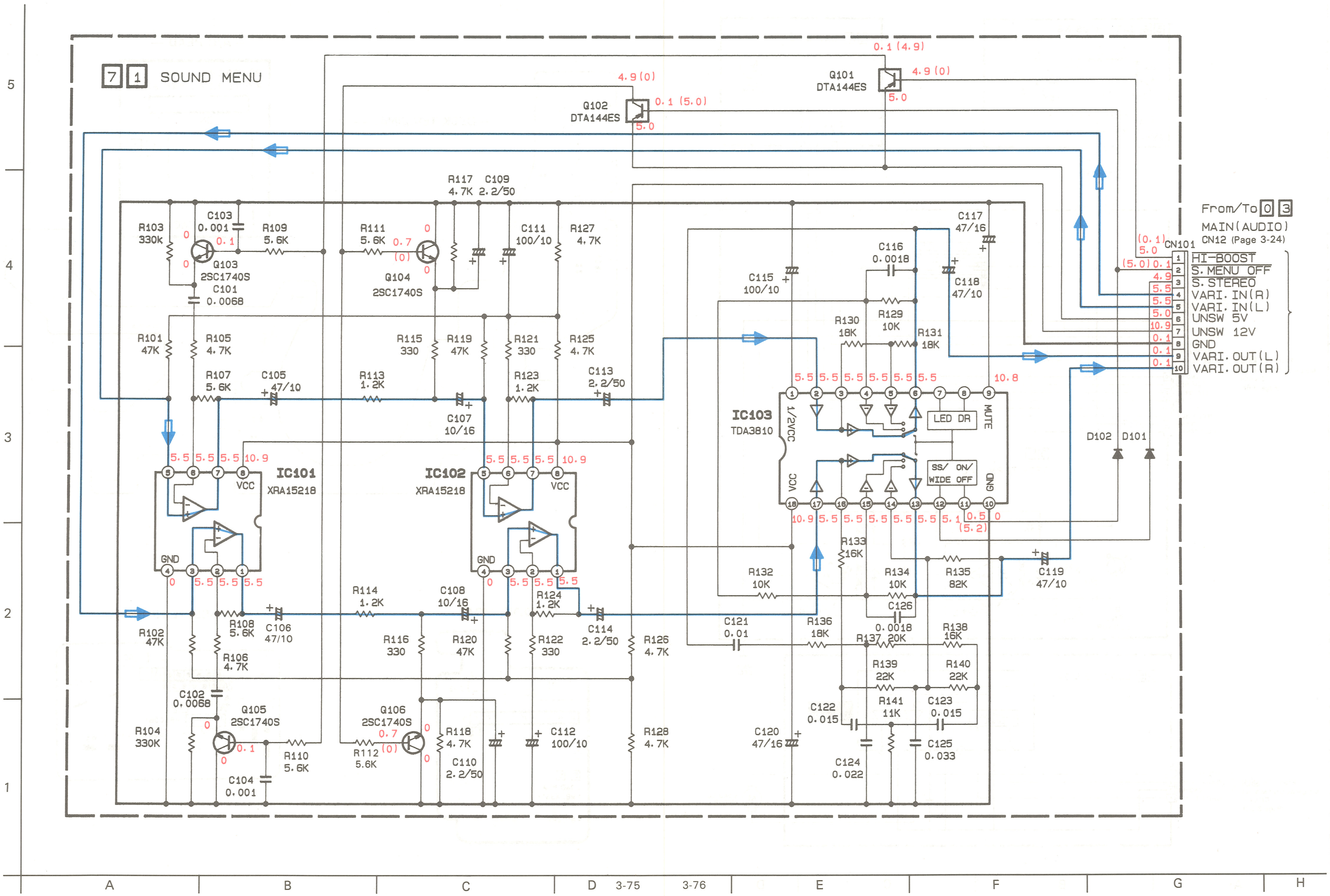

— A/C HEAD —

— DECK TERMINAL —
PB40068 A
A/CTL HEAD PWB AS'Y
1 CN1 7
1 2
PB40068
A/CTL HEAD PWB
PB10481 -01-03
DECK TERMINAL PWB
5 1 DECK TERMINAL PWB ASS'Y
PS1
B
A
C

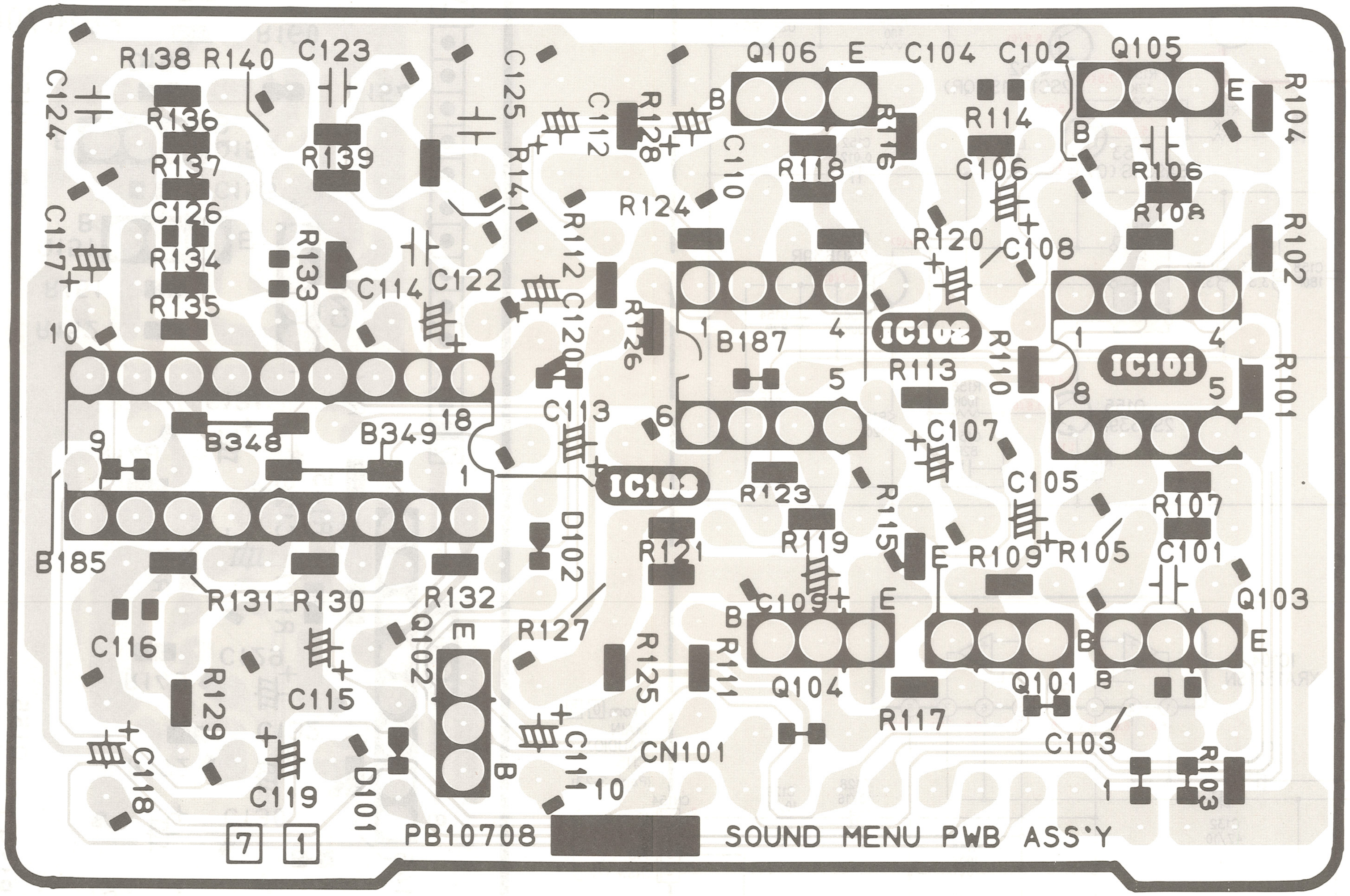

— LOADING MDA —
LOAD.MDA PWB
PB10481 -01-03
CN1
C3
C1
CN2
C4
9
IC1
C2
5 5
LOAD.MDA PWB ASS'Y
PB10481


— CASSETTE HOUSING —
C1
C
Q2
E
A
9
PS3
R2
R1
D1
5 6
PB40061
C.H PWB ASS'Y
CN2
TH1
R3
C.H PWB
PB40061

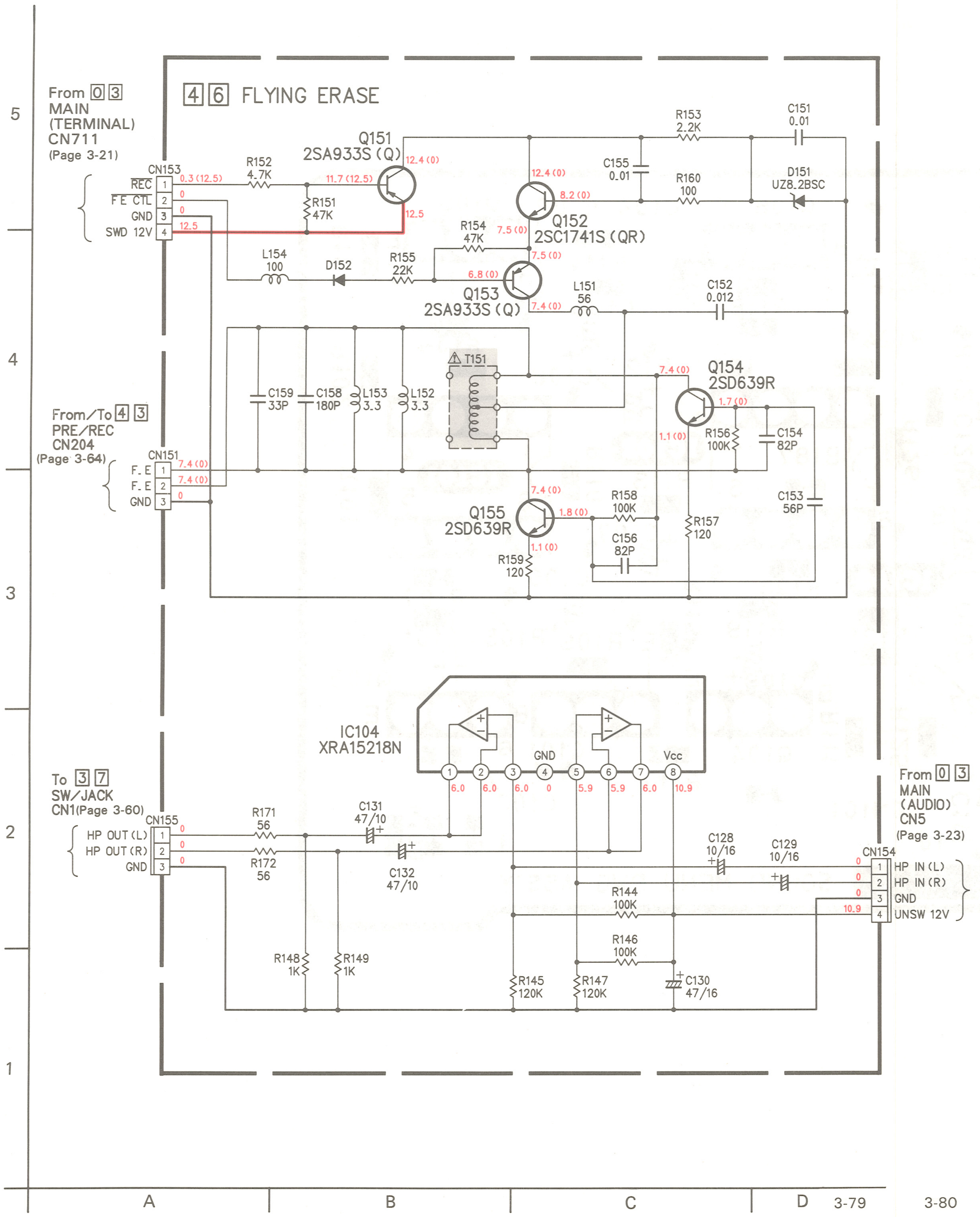
3.38 SOUND MENU SCHEMATIC DIAGRAM


7 1 SOUND MENU
Q101 DTA144ES
Q102 DTA144ES
0.1 (4.9)
4.9 (0)
5.0
0.1 (5.0)
R117 4.7K
C109 2.2/50
R103 330k
C103 0.001
R109 5.6K
Q103 2SC1740S
C101 0.0068
R111 5.6K
Q104 2SC1740S
C111 100/10
R127 4.7K
R101 47K
R105 4.7K
R107 5.6K
C105 47/10
R113 1.2K
C107 10/16
R115 330
R119 47K
R121 330
R123 1.2K
R125 4.7K
C113 2.2/50
IC101 XRA15218
IC102 XRA15218
VCC
GND
R102 47K
R108 5.6K
C106 47/10
R106 4.7K
R114 1.2K
C108 10/16
R124 1.2K
C114 2.2/50
R116 330
R120 47K
R122 330
R126 4.7K
C102 0.0068
Q105 2SC1740S
R104 330K
C104 0.001
R110 5.6K
Q106 2SC1740S
R112 5.6K
R118 4.7K
C110 2.2/50
C112 100/10
R128 4.7K
C115 100/10
C116 0.0018
C117 47/16
C118 47/10
R130 18K
R129 10K
R131 18K
IC103 TDA3810
1/2VCC
LED DR
MUTE
SS/ WIDE
ON/ OFF
VCC
GND
R132 10K
R133 16K
R134 10K
R135 82K
C119 47/10
C121 0.01
R136 18K
C126 0.0018
R137 20K
R138 16K
R139 22K
R140 22K
R141 11K
C122 0.015
C123 0.015
C120 47/16
C124 0.022
C125 0.033
D102 D101
CN101
From/To 0 3
MAIN (AUDIO)
CN12 (Page 3-24)
1 HI-BOOST
2 S. MENU OFF
3 S. STEREO
4 VARI. IN (R)
5 VARI. IN (L)
6 UNSW 5V
7 UNSW 12V
8 GND
9 VARI. OUT (L)
10 VARI. OUT (R)
(0.1) 5.0
(5.0) 0.1
4.9
5.5
5.5
5.0
10.9
0.1
0.1
0.1
10.8
5.5 5.5 5.5 5.5 5.5 5.5
10.9 5.5 5.5 5.5 5.5 5.5 5.5 5.1
0.5 (5.2) 0
5.5 5.5 5.5 10.9
0 5.5 5.5 5.5
0.1 0.7 (0) 0
5
4
3
2
1
A B C D E F G H

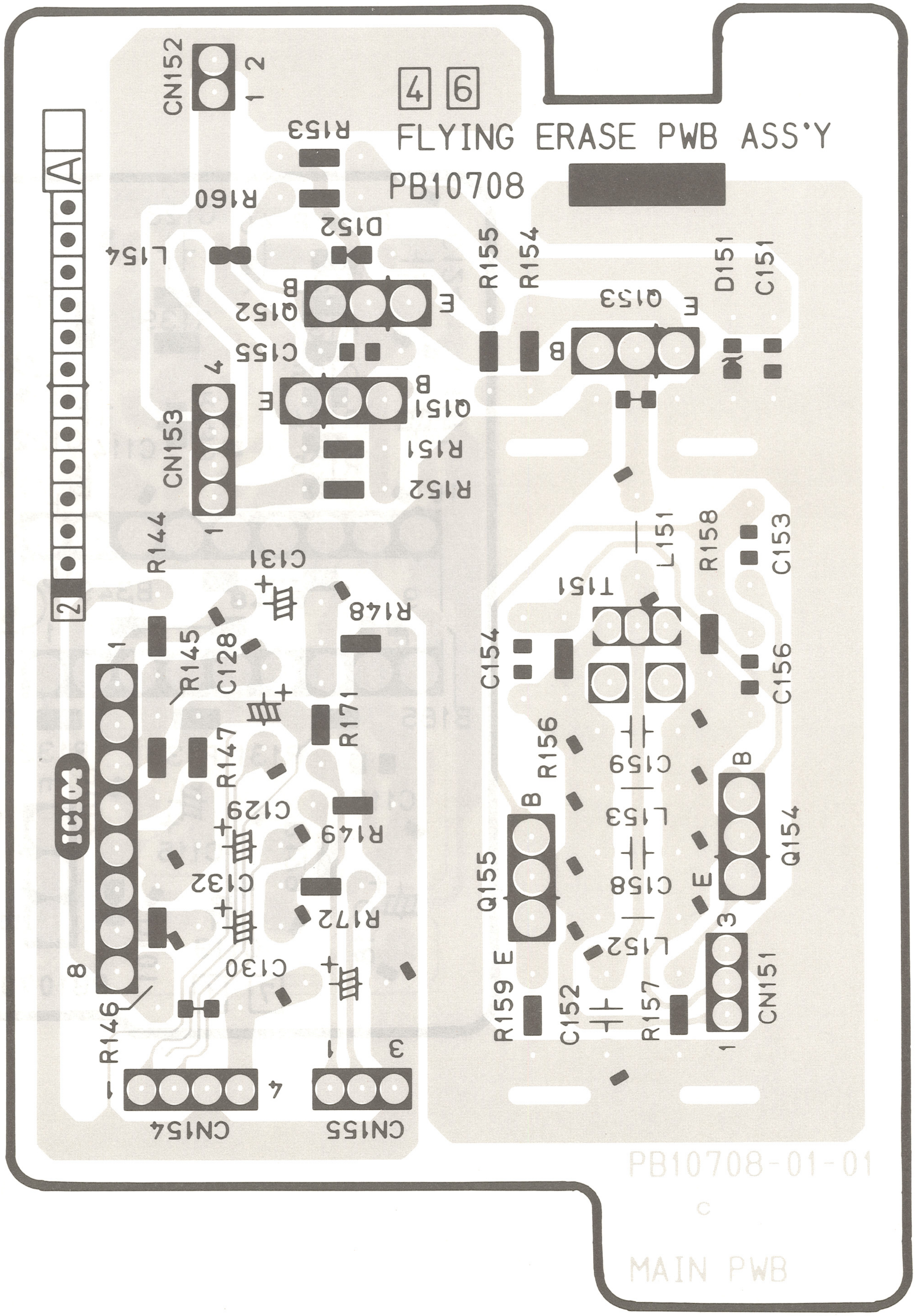
3.39 SOUND MENU CIRCUIT BOARD


R138
R140
C123
C124
R136
R137
R139
C125
C112
R128
B
Q106
E
R116
C110
C104
C102
Q105
R114
E
R104
B
R118
C106
R106
R141
R124
R108
C126
C117
R134
R133
C114
C122
R112
C120
R126
R120
C108
R102
R135
10
1
B187
4
IC102
R110
1
4
IC101
R101
5
R113
8
5
B348
B349
18
9
C113
6
C107
1
IC103
R123
R115
C105
R107
D102
R121
R119
E
R109
R105
C101
B185
R131
R130
R132
Q102
E
R127
C109
E
Q103
B
B
E
C116
R125
R111
Q104
Q101
B
R129
C115
R117
C103
C118
C119
D101
B
C111
CN101
10
1
R103
7
1
PB10708
SOUND MENU PWB ASS'Y

3.40 FLYING ERASE SCHEMATIC DIAGRAM

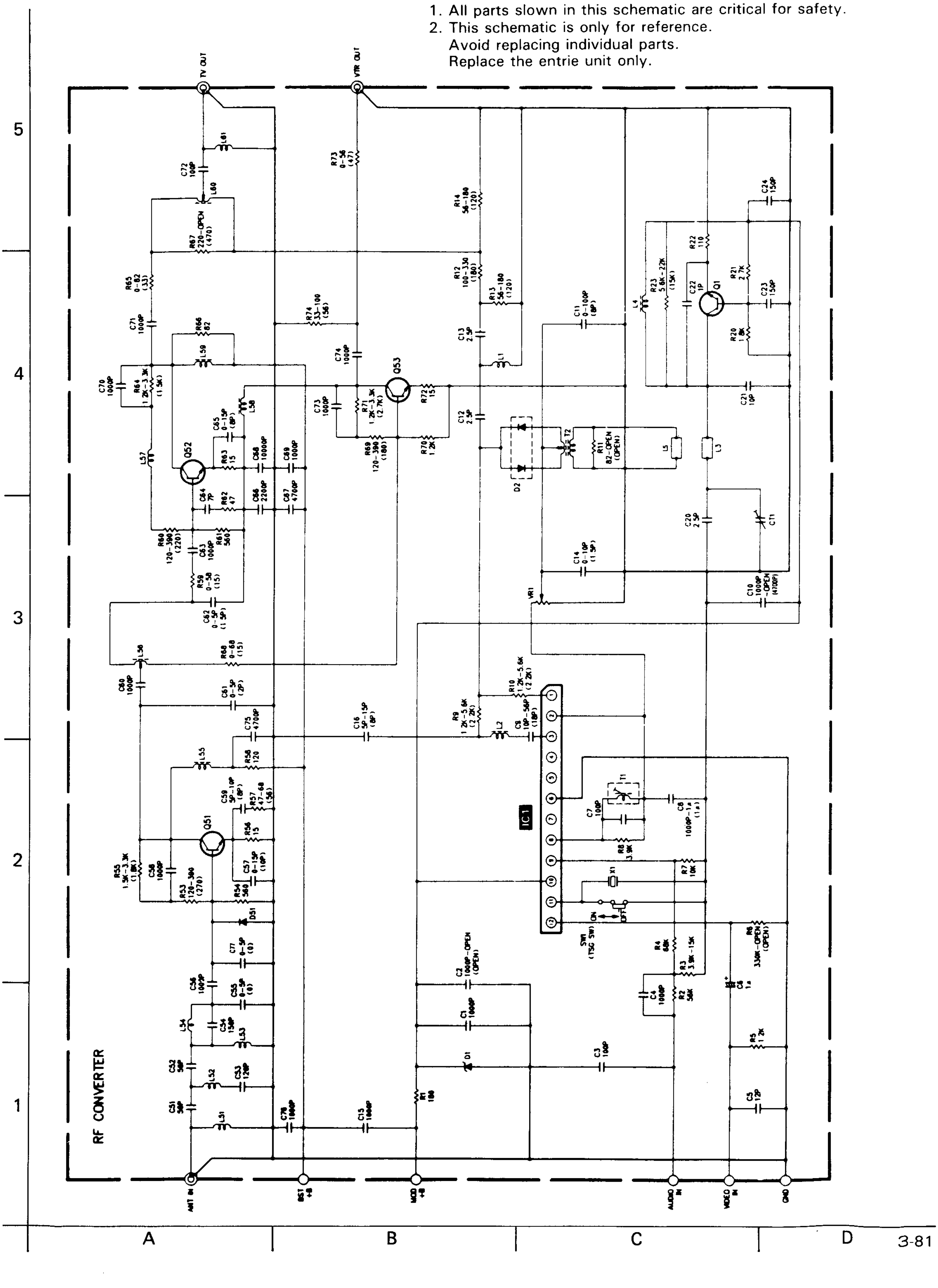

4 6 FLYING ERASE
From 0 3 MAIN (TERMINAL) CN711 (Page 3-21)
CN153
REC
FE CTL
GND
SWD 12V
R152 4.7K
R151 47K
Q151 2SA933S (Q)
Q152 2SC1741S (QR)
Q153 2SA933S (Q)
Q154 2SD639R
Q155 2SD639R
R153 2.2K
C151 0.01
C155 0.01
R160 100
D151 UZ8.2BSC
R154 47K
L154 100
D152
R155 22K
L151 56
C152 0.012
C159 33P
C158 180P
L153 3.3
L152 3.3
T151
R156 100K
C154 82P
R158 100K
C156 82P
R157 120
C153 56P
R159 120
From/To 4 3 PRE/REC CN204 (Page 3-64)
CN151
F.E
F.E
GND
IC104 XRA15218N
GND
Vcc
To 3 7 SW/JACK CN1 (Page 3-60)
CN155
HP OUT (L)
HP OUT (R)
GND
R171 56
R172 56
C131 47/10
C132 47/10
C128 10/16
C129 10/16
R144 100K
R146 100K
R148 1K
R149 1K
R145 120K
R147 120K
C130 47/16
From 0 3 MAIN (AUDIO) CN5 (Page 3-23)
CN154
HP IN (L)
HP IN (R)
GND
UNSW 12V
5
4
3
2
1
A
B
C
D

3.41 FLYING ERASE CIRCUIT BOARD


4 6
FLYING ERASE PWB ASS'Y
PB10708
CN152
CN153
CN154
CN155
CN151
IC104
Q151
Q152
Q153
Q154
Q155
T151
D151
D152
R144
R145
R146
R147
R148
R149
R151
R152
R153
R154
R155
R156
R157
R158
R159
R160
R171
R172
C128
C129
C130
C131
C132
C151
C152
C153
C154
C156
C158
C159
L151
L152
L153
L154
A
PB10708-01-01
MAIN PWB

3.42 RF CONVERTER SCHEMATIC DIAGRAM

Notes:
1. All parts slown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entrie unit only.


TV OUT
VTR OUT
ANT IN
BST +B
MOD +B
AUDIO IN
VIDEO IN
GND
RF CONVERTER
IC1
Q1
Q51
Q52
Q53
D1
D2
D51
SW1 (TSG SW)
ON
OFF
X1
VR1
T1
T2
CT1
L1
L2
L3
L4
L5
L31
L52
L53
L54
L55
L56
L57
L58
L59
L60
L61
R73 0-56 (47)
R74 33-100 (56)
R14 56-180 (120)
R12 100-330 (180)
R13 56-180 (120)
R67 220-OPEN (470)
R65 0-82 (33)
R66 82
R64 1.2K-3.3K (1.5K)
R71 1.2K-3.3K (2.7K)
R72 15
R70 1.2K
R69 120-390 (180)
R63 15
R62 47
R60 120-390 (220)
R61 560
R59 0-56 (15)
R68 0-68 (15)
R58 120
R57 47-68 (56)
R56 15
R55 1.5K-3.3K (1.8K)
R53 120-390 (270)
R54 560
R9 1.2K-5.6K (2.2K)
R10 1.2K-5.6K (2.2K)
R11 82-OPEN (OPEN)
R20 1.8K
R21 2.7K
R22 110
R23 5.6K-22K (15K)
R1 100
R2 56K
R3 3.9K-15K
R4 68K
R5 1.2K
R6 330K-OPEN (OPEN)
R7 10K
R8 3.9K
C72 100P
C71 1000P
C70 1000P
C74 1000P
C73 1000P
C65 0-15P (8P)
C68 10000P
C69 1000P
C64 7P
C66 2200P
C67 4700P
C63 1000P
C62 0-5P (1.5P)
C60 1000P
C61 0-5P (2P)
C75 4700P
C16 5P-15P (8P)
C59 5P-10P (8P)
C58 1000P
C57 0-15P (10P)
C77 0-5P (0)
C56 1000P
C55 0-5P (0)
C54 15P
C53 12P
C52 5P
C51 5P
C76 1000P
C15 1000P
C13 2.5P
C12 2.5P
C11 0-100P (8P)
C14 0-10P (1.5P)
C10 1000P -OPEN (4700P)
C20 2.5P
C21 10P
C22 1P
C23 150P
C24 150P
C9 10P-56P (18P)
C7 100P
C8 1000P-1μ (1μ)
C2 1000P-OPEN (OPEN)
C1 1000P
C3 100P
C4 1000P
C6 1μ
C5 12P
5
4
3
2
1
A
B
C
D

3.43 REMOTE CONTROL SCHEMATIC DIAGRAM

Notes:

1. All parts slown in this schematic are critical for safety.
2. This schematic is only for reference.
   Avoid replacing individual parts.
   Replace the entrie unit only.

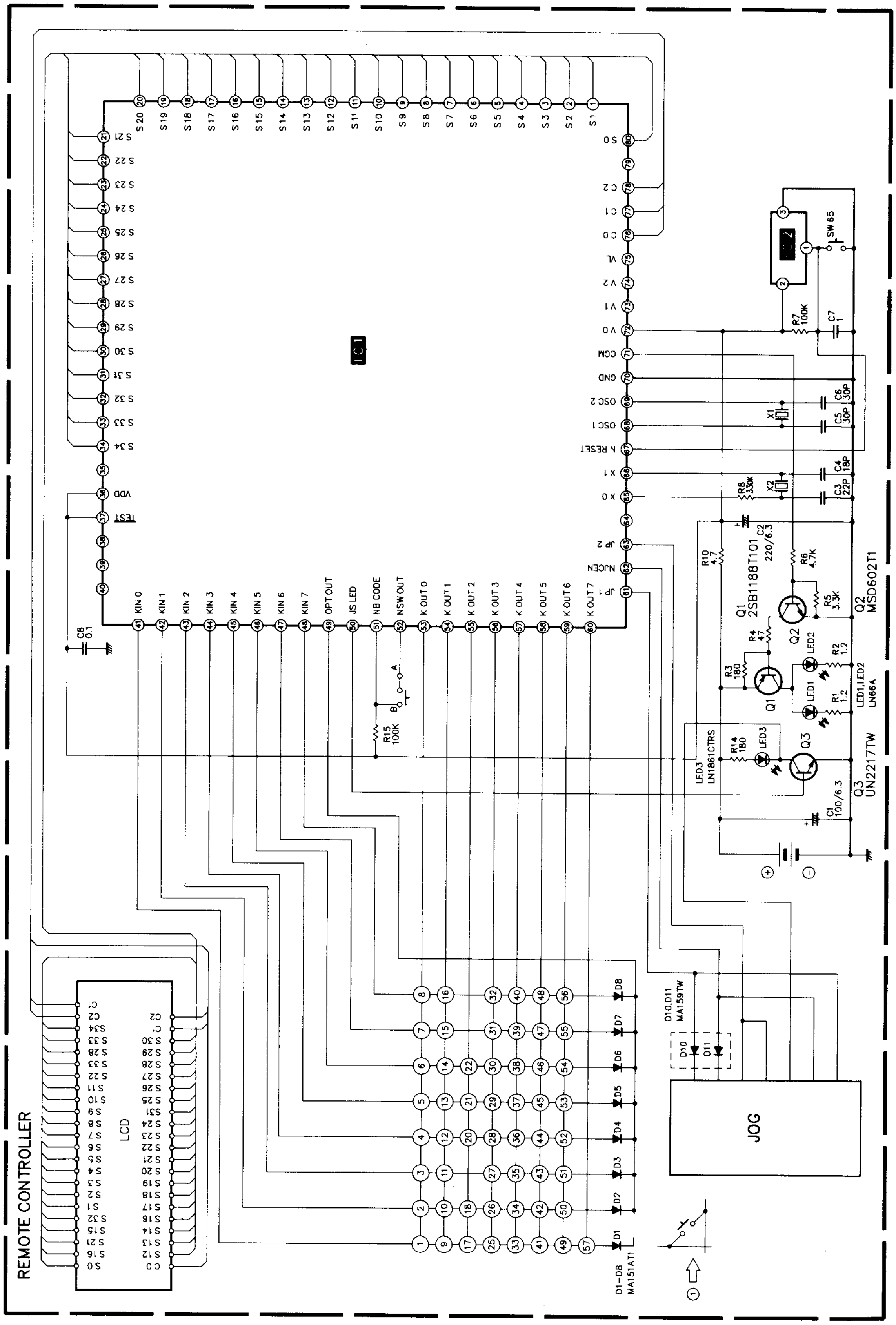
5

4

3

2

1


REMOTE CONTROLLER
IC1
IC2
SW 65
LCD
JOG
S 0 … S 34
C 0, C 1, C 2
VL, V 2, V 1, V 0
COM
GND
OSC 2, OSC 1
N RESET
X 1, X 0
JP 2, NJCEN, JP 1
VDD
TEST
KIN 0 … KIN 7
OPT OUT
JS LED
NB CODE
NSW OUT
K OUT 0 … K OUT 7
R7 100K
C7 1
C6 30P
C5 30P
X1
C4 18P
C3 22P
R8 330K
X2
C2 220/6.3
R10 4.7
Q1 2SB1188T101
R6 4.7K
R5 3.3K
Q2 MSD602T1
R4 47
R3 180
LED1
LED2
R2 1.2
R1 1.2
LED1,LED2 LN66A
R14 180
LED3
LED3 LN1861CTRS
Q3 UN2217TW
C1 100/6.3
C8 0.1
R15 100K
A
B
D1–D8 MA151AT1
D10,D11 MA159TW
D10
D11
⊕
⊖
①

KEY NO.	KEY NAME
1	TV STANDBY
2	TV/AUX
3	TV PROG ∧
4	TV PROG ∨
5	TV VOL +
6	TV VOL −
7	0
8	1
9	2
10	3
11	4
12	5
13	6
14	7
15	8
16	9
17	VPS/CH
18	TIMED PAGE
19	
20	TV CODE
21	TRANS
22	CLOCK ADJ
23	
24	
25	REC
26	SCENE CTL
27	MENU/TEXT
28	SUMMER TIME ADJ
29	JOG/SHUTTLE
30	CANCEL
31	INDEX ←
32	SET −
33	SELECT
34	SET +
35	OPERATE
36	EJECT
37	INDEX(PAGE −)
38	STORE
39	PAUSE
40	V.SEARCH<<
41	SKIP/BLANK
42	V.SEARCH>>
43	REW
44	PLAY
45	F.F
46	STOP
47	TV/VTR
48	TIMER
49	INTRO(PAGE +)
50	SP/LP
51	CH SEARCH
52	INDEX →
53	LARGE/NORMAL
54	SOUND MENU
55	PROG
56	DISPLAY
57	OSD

A | B | C | D

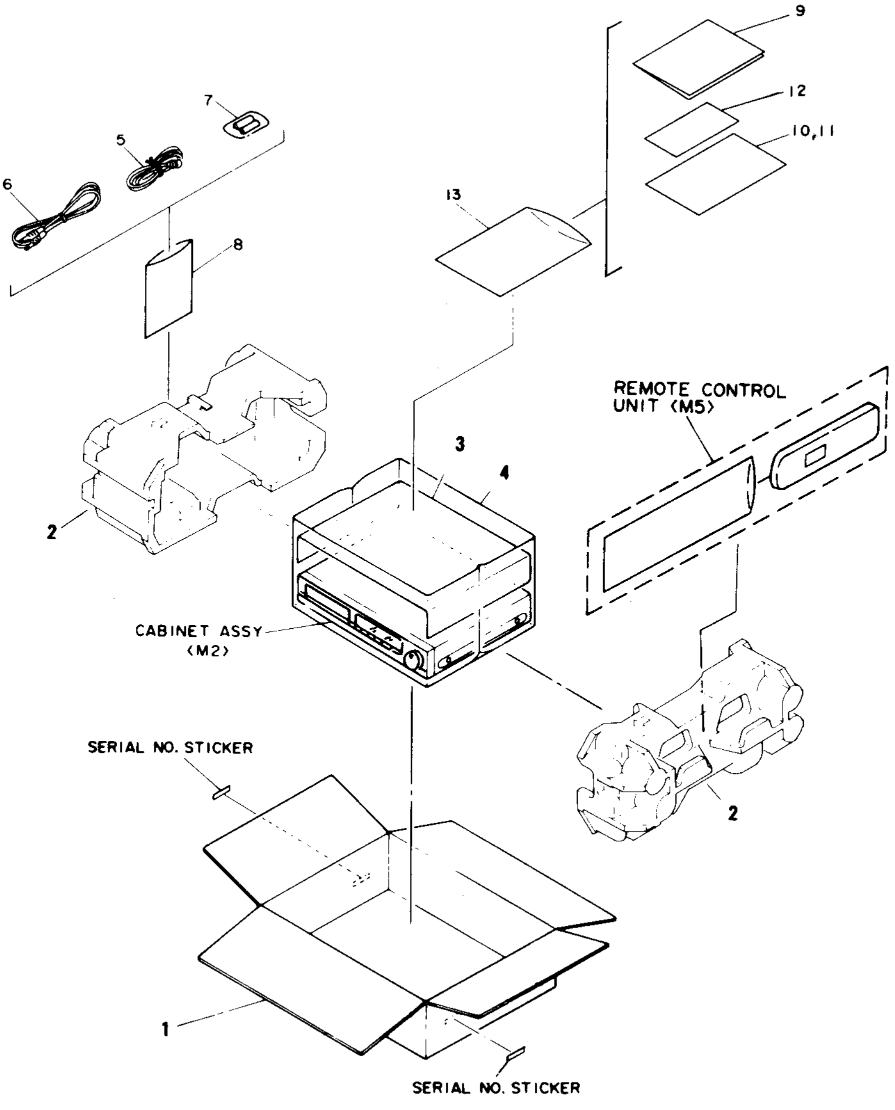
SECTION 4
EXPLODED VIEWS AND PARTS LIST

SAFETY PRECAUTION

Parts identified by the ⚠ symbol are critical for safety.Replace only with specified part numbers.

NOTE:<M >indicates mechanical symbol number.

4.1 PACKING ASSEMBLY <M1>

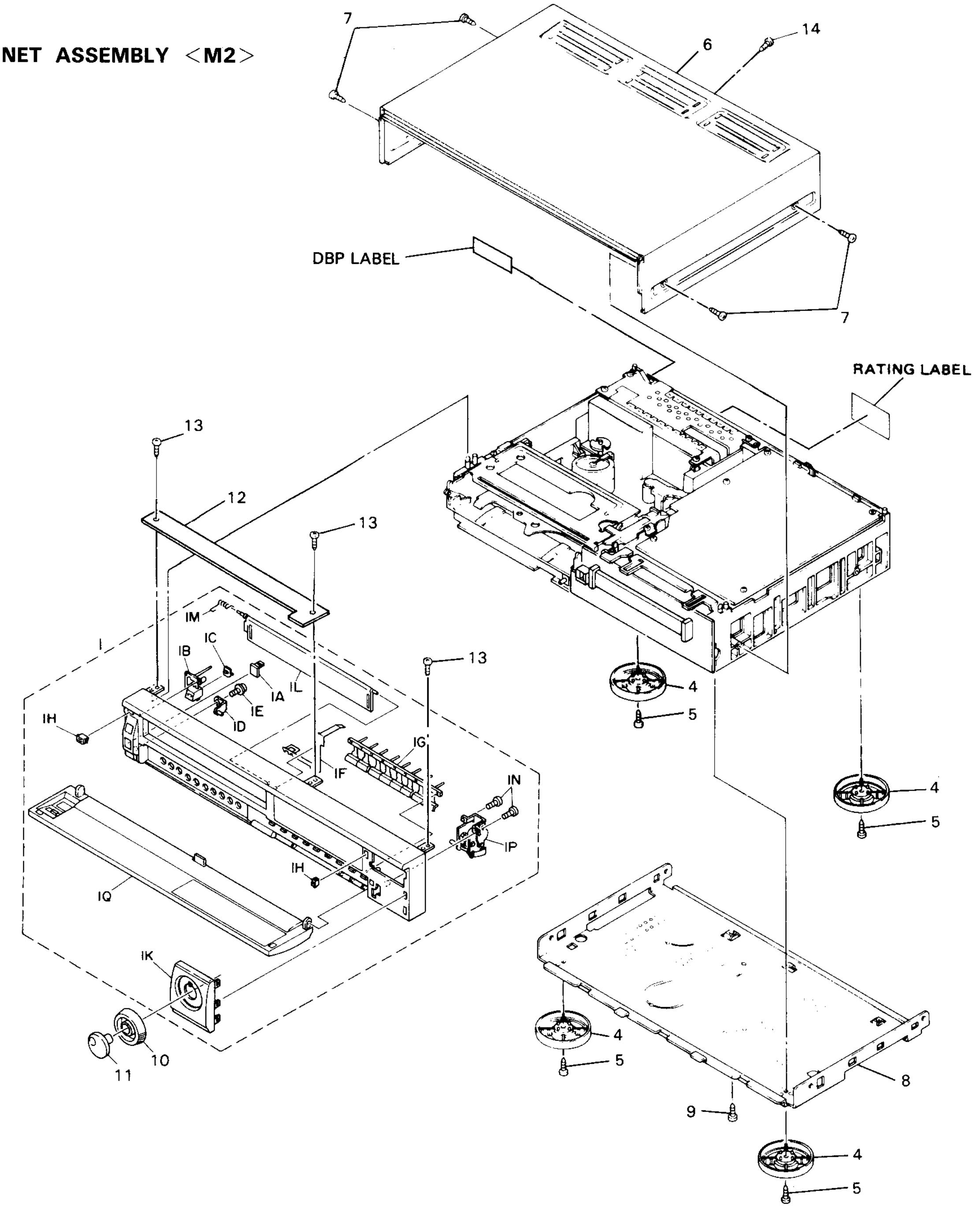

9
12
10,11
7
5
6
13
8
REMOTE CONTROL UNIT <M5>
3
4
2
CABINET ASSY <M2>
SERIAL NO. STICKER
2
1
SERIAL NO. STICKER

* *

PACKING ASSEMBLY <M1>

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	1	PQ33955-28	PACKING CASE
	2	PQ34537A-1	CUSHION ASSY
	3	PQ41026-8	PROTECT SHEET
	4	PQM30021-59-11	POLY BAG
	5	PU56142-5	PIN CORD ASSY
	or	PU56142-3	PIN CORD ASSY
	6	PEAC0222	RF CABLE
	7	UM-3DJ2P	BATTERY,X2
	8	QPGA020-02005	POLY BAG
⚠	9	PU30425-1345	INSTRUCTIONS
	10	BT-20114	WARRANTY CARD
	11	PQ33909	POLY BAG,FOR WARRANTY CARD
	12	PU61342-6	INST SHEET(RCU)
	13	QPGA025-03505	POLY BAG

4.2 CABINET ASSEMBLY <M2>

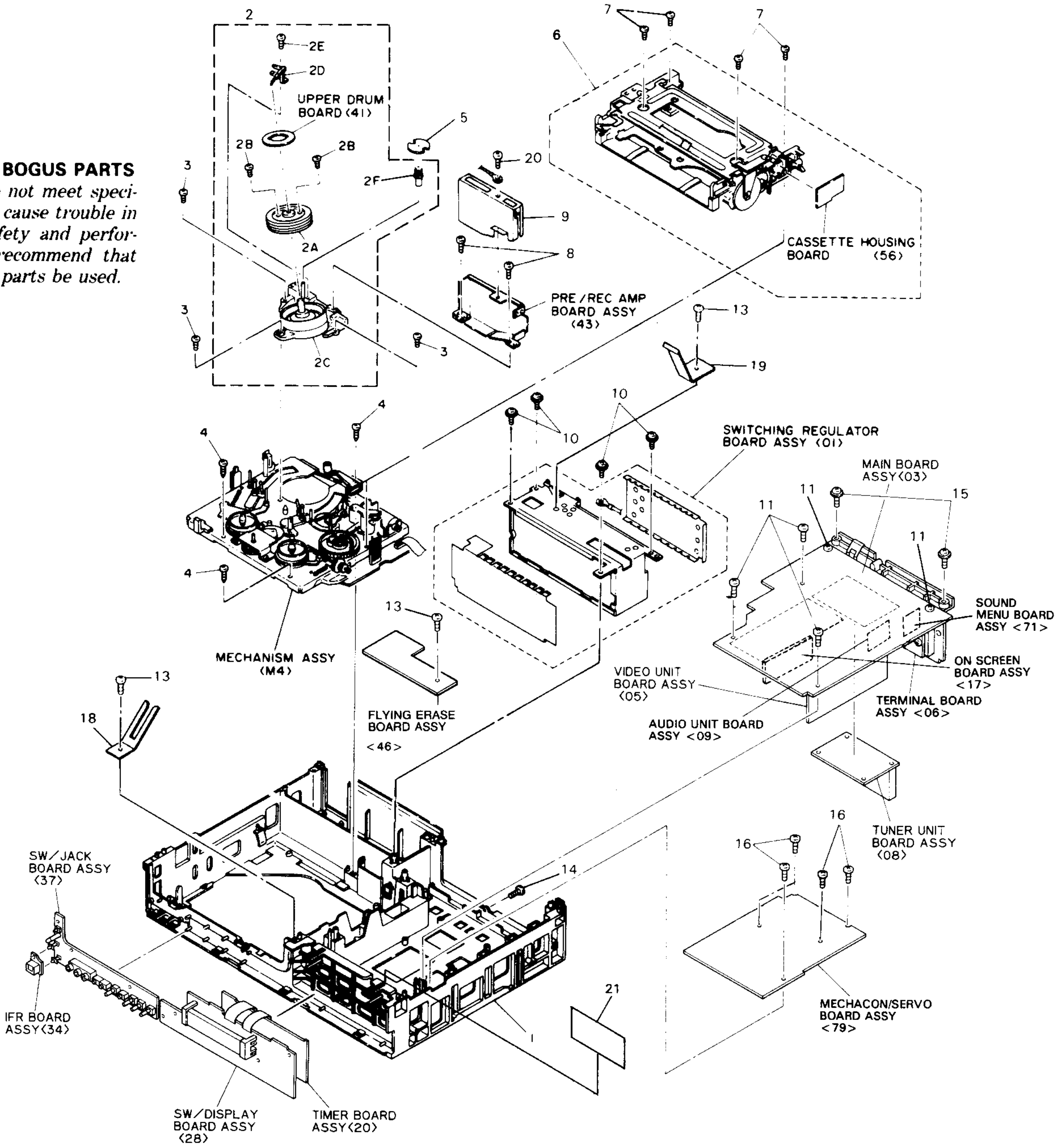

7
6
14
7
DBP LABEL
RATING LABEL
13
12
13
IM
IC
IB
I
IA
IL
IE
ID
IH
13
IG
IF
IN
IP
IH
IQ
IK
10
11
4
5
4
5
8
9
4
5
4
5

CABINET ASSEMBLY <M2>

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	1	PQ11392M-4	FRONT PANEL ASSY
	1A	PQ45763-1-1	WINDOW(IR)
	1B	PQ34403-2-1	BUTTON(POWER)
	1C	PQ45762-1-1	INDICATOR(POWER
	1D	PQ45838A-2	SHAFT ASSEMBLY
	1E	SDSF2608Z	SCREW
	1F	PQ34409-1-1	PLATE(EARTH)
	1H	PU59891-2	MAGNET ASSEMBLY,X2
	1K	PQ21428B	COVER ASSEMBLY
	1L	PQ21414-2-3	CASSETTE DOOR
	1M	PQ45704	TORSION SPRING
	1N	SDSF2608Z	SCREW,X2
	1P	PQ34436A	DAMPER UNIT ASSEMBLY
	1Q	PQ11450L-5	DOOR ASSEMBLY
	4	PQ45531A-2	FOOT ASSEMBLY,X4
	5	SDSF3010Z	SCREW,X4 FOR FOOT ASSEMBLY
⚠	6	PQ11144-1-3	TOP COVER
	7	PQ43827	SPECIAL SCREW,X4 FOR TOP COVER
⚠	8	PQ11145	BOTTOM COVER
	9	SDSF3010Z	SCREW,BOTTOM COVER
	10	PQ34405-1-3	KNOB(SHUTTLE)
	11	PQ34526B	KNOB(JOG)ASSEMBLY
	12	PQ34683	PLATE(SUPPORT)
	13	GPSF2608Z	SCREW,X3
	14	SDSF3010M	SCREW,TOP COVER

4.3 CHASSIS ASSEMBLY <M3>

BEWARE OF BOGUS PARTS
Parts that do not meet specifications may cause trouble in regard to safety and performance. We recommend that genuine JVC parts be used.

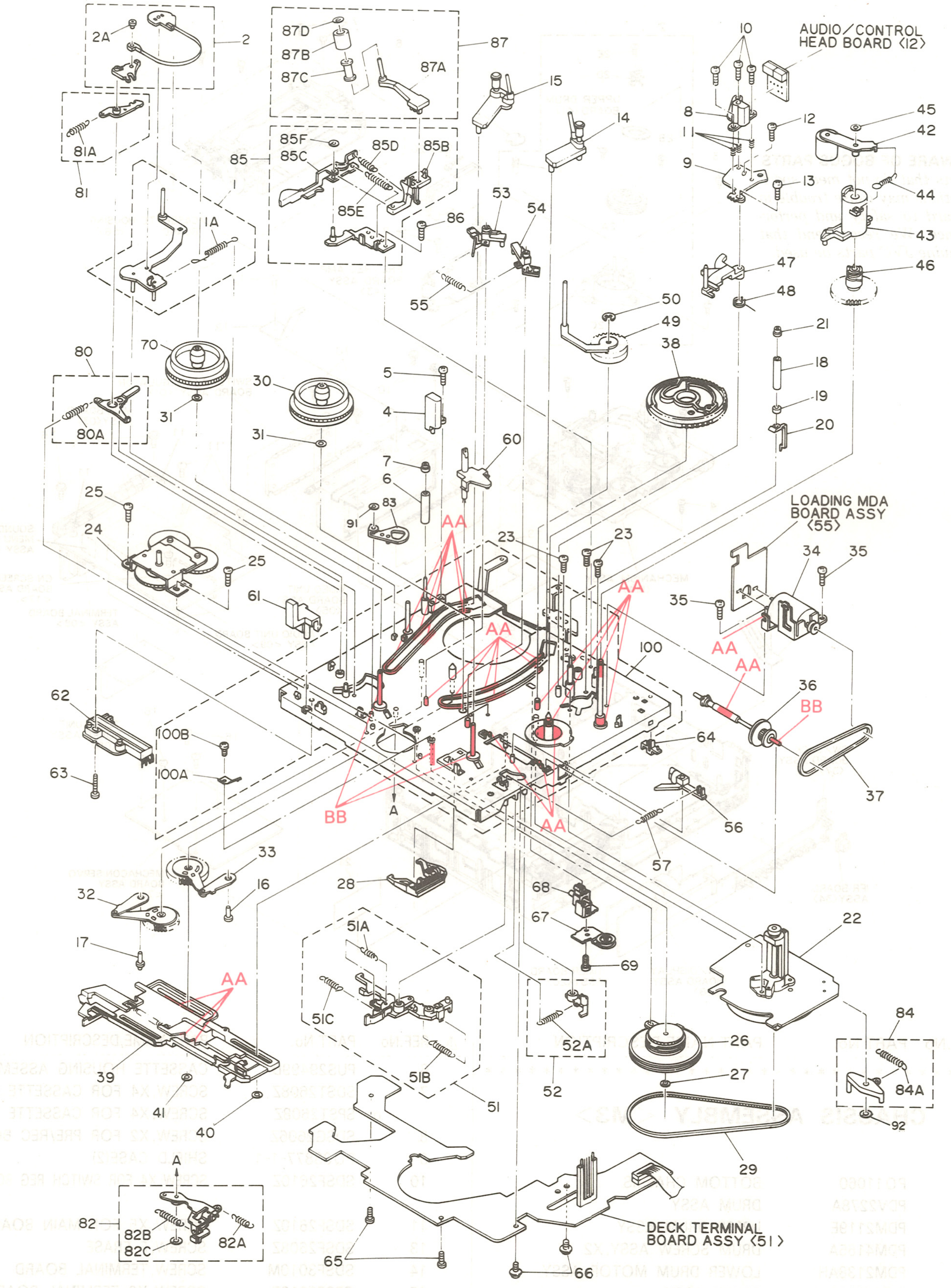

2
2E
2D
UPPER DRUM BOARD <41>
2B
2B
3
2F
2A
3
2C
3
5
20
9
8
PRE/REC AMP BOARD ASSY <43>
6
7
7
CASSETTE HOUSING BOARD <56>
13
19
4
4
4
10
10
10
SWITCHING REGULATOR BOARD ASSY <01>
MAIN BOARD ASSY<03>
11
11
11
15
SOUND MENU BOARD ASSY <71>
ON SCREEN BOARD ASSY <17>
TERMINAL BOARD ASSY <06>
VIDEO UNIT BOARD ASSY <05>
AUDIO UNIT BOARD ASSY <09>
MECHANISM ASSY <M4>
13
FLYING ERASE BOARD ASSY <46>
13
18
16
16
TUNER UNIT BOARD ASSY <08>
14
SW/JACK BOARD ASSY <37>
IFR BOARD ASSY<34>
21
1
MECHACON/SERVO BOARD ASSY <79>
SW/DISPLAY BOARD ASSY <28>
TIMER BOARD ASSY<20>

* *

CHASSIS ASSEMBLY <M3>

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
⚠	1	PQ11060	BOTTOM CHASSIS
	2	PDV2278A	DRUM ASSY
	2A	PDM2119E	UPPER DRUM ASSY
	2B	PDM4165A	DRUM SCREW ASSY,X2
	2C	PDM2138AH	LOWER DRUM MOTOR ASSY
	2D	PDM4229A-1	BRUSH ASSY
	2E	SPSG2606Z	SCREW,FOR BRUSH ASSY
	2F	PDM4226A	ROLLER ASSY
	3	SPST2610Z	SCREW,X3 DRUM ASSY
	or	SDST2610Z	SCREW,X3 FOR DRUM ASSY
	4	PQ43831	SPECIAL SCREW,X3 FOR MECH ASSY
	5	PQ45160	INERTIA PLATE
	6	PUS29499D	CASSETTE HOUSING ASSEMBLY
	7	SDST2608Z	SCREW,X4 FOR CASSETTE HOUSING
	or	SPST2608Z	SCREW,X4 FOR CASSETTE HOUSING
	8	SDSG2606Z	SCREW,X2 FOR PRE/REC BOARD
	9	PQ33877-1-1	SHIELD CASE(2)
	10	SDSF2610Z	SCREW,X4 FOR SWITCH REG BOARD
	11	SDSF2610Z	SCREW,X5 FOR MAIN BOARD
	13	SDSF2608Z	SCREW,F ERASE
	14	SDSF3010M	SCREW,TERMINAL BOARD
	15	GPSF2610Z	SCREW,X2 TERMINAL BOARD
	16	SDSF2610Z	SCREW,X4 M-CTL/SERVO
	18	PQ41556	EARTH PLATE
	19	PQ43849	EARTH PLATE
	20	SDSG2606Z	SCREW
	21	PQ34163	SHIELD PLATE

4.4 MECHANISM ASSEMBLY <M4>


2A
2
87D
87B
87C
87A
87
15
14
10
AUDIO/CONTROL HEAD BOARD ⟨12⟩
8
12
45
42
81A
81
85F
85C
85D
85B
85
85E
86
1
1A
53
54
55
11
9
13
44
43
47
48
46
50
49
38
21
18
19
20
80
70
30
31
80A
31
5
4
60
7
6
83
91
AA
25
24
25
61
23
23
LOADING MDA BOARD ASSY ⟨55⟩
34
35
35
AA
AA
AA
AA
100
36
BB
62
100B
100A
63
64
37
BB
A
AA
56
57
33
16
32
28
68
67
69
17
22
51A
AA
51C
52A
51B
51
52
26
27
84
84A
92
39
41
40
29
A
82
82B
82C
82A
65
66
DECK TERMINAL BOARD ASSY ⟨51⟩

Category	Part number	MARK
Grease	KANTO-G-31KAV	AA
Oil	COSMO-HV56	BB

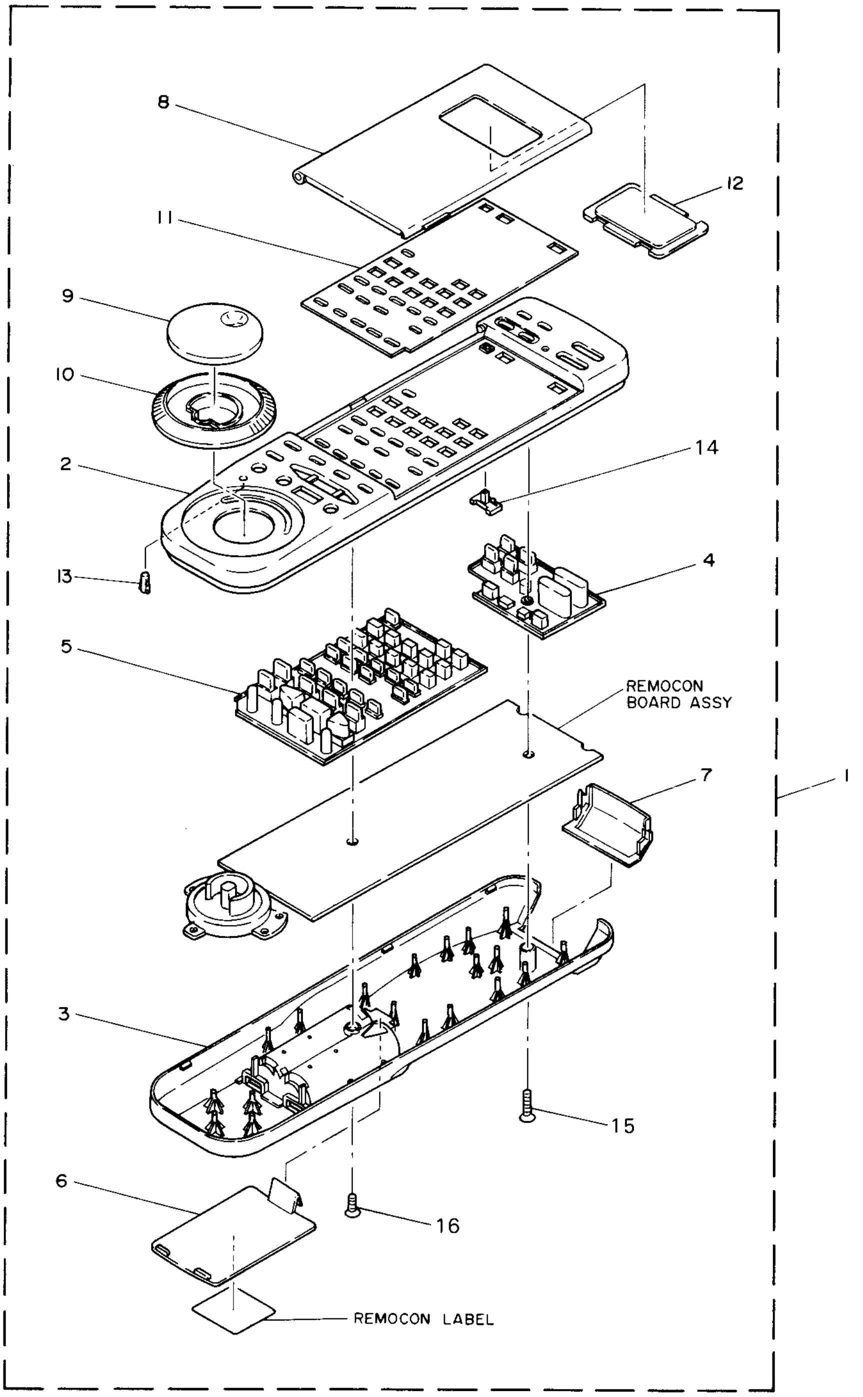
NOTE: The section marked in AA and BB indicate lubrication and greasing areas.

* *

MECHANISM ASSEMBLY <M4>

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	1	PQ43497E-11	TENSION ARM ASSY
	1A	PQ43500	TENSION SPRING
	2	PQ44734A-7	TENSION BAND ASSY
	2A	PQ45456	ADJUST PIN
	4	PU60616	FULL ERASE HEAD
	5	SDSF2614Z	SCREW
	6	PQ43505-1-1	ROLLER
	7	PQ43506	GUIDE POLE CAP
	8	PU61002	AUDIO/CONTROL HEAD
	9	PQ43509	HEAD BASE
	10	PQ43687A	SPECIAL SCREW, X3
	11	PQM30002-192	COMPRESSION SPRING, X3
	12	SPSF2608M	SCREW
	13	SPSP2606Z	SCREW
	14	PU61103-2-7	POLE BASE(TAKE-UP) ASSY
	15	PU61151-2-6	POLE BASE(SUPPLY) ASSY
	16	PQ45895	STOPPER(T)
	17	PQ45894	STOPPER(S)
	18	PQ43526-1-3	TAPE GUIDE
	19	PQ43670-1-1	GUIDE FLANGE
	20	PQ43675	TAPE GUARD
	21	PQ43506	GUIDE POLE CAP
⚠	22	PU61003-1-2	CAPSTAN MOTOR
	23	SPSG2608Z	SCREW, X3
	24	PU61246	IDLER GEAR UNIT
	25	SPST2606Z	SCREW, X2
	26	PU61245-1-3	CLUTCH UNIT
	27	PQM30017-8	SLIT WASHER
	28	PQ43532B	CHANGE LEVER ASSY
	29	PU61006	TIMING BELT
	30	PU60858-1-4	REEL DISK (TAKE-UP)
	31	PQM30018-54	SPACER, X2
	32	PQ43537A	LOADING ARM ASSY (SUPPLY)
	33	PQ43542B	LOADING ARM ASSY (TAKE-UP)
⚠	34	PQ43676B-5	MODE MOTOR ASSY
	35	SPST2606Z	SCREW, X2
	36	PQ43548A-3	WORM CLUTCH ASSY
	37	PQM30003-23	LOADING BELT
	38	PQ20822-2-7	CONTROL CAM
	39	PQ44581A-6	PLATE ASSY
	40	PQM30017-12	SLIT WASHER
	41	PQM30017-8	SLIT WASHER
	42	PQ43558A-5	PINCH ROLLER ARM ASSY
	or	PQ43558B	PINCH ROLLER ARM ASSY
	43	PQ32415	PINCH ROLLER PRESS LEVER
	44	PQM30001-233	TENSION SPRING
	45	PQM30017-12	SLIT WASHER
	46	PQ32416-2	PINCH ROLLER CAM
	47	PQ43567A-13	GUIDE ARM ASSY
	48	PQ43569-1-3	TORSION SPRING
	49	PQ43570A-2	HALF LOADING GEAR ASSY
	50	PQM30017-12	SLIT WASHER
	51	PQ43575A-5	CANCEL LEVER ASSY
	51A	PQM30001-273	TENSION SPRING
	51B	PQM30001-237	TENSION SPRING
	51C	PQM30001-274	TENSION SPRING
	52	PQ43578A-2	HOOK ASSY
	52A	PQM30001-238	TENSION SPRING
	53	PQ43581C	MAIN BRAKE(SUPPLY) ASSY
	54	PQ43582B	MAIN BRAKE(TAKE-UP) ASSY
	55	PQM30001-251	TENSION SPRING
	56	PQ43583A-3	SUB BRAKE ASSY (TAKE-UP)
	57	PQM30001-346	TENSION SPRING
	60	PU60621-1-2	LED HOLDER, (INCL.D1)
	61	PU60624-1-4	REC SAFETY SWITCH(S2)
	62	PU61247-1-1	SLIDE ENCORDER, (S3)
	63	SDSF2614Z	SCREW
	64	PQ32516	BOARD HOLDER
	65	SDST2616Z	SCREW, X2
	66	GPSF2608Z	SCREW, X2
	67	PQ43912A-7	PULLEY ARM ASSY
	68	PQ33249	PULLEY BASE
	69	PQ45121A	SCREW
	70	PU60859-1-4	REEL DISK (SUPPLY)
	or	PQ45622A	REEL DISK (SUPPLY)
	80	PQ44739A-1	LOCK LEVER 1 ASSY
	80A	PQM30001-278-46	TENSION SPRING
	81	PQ44741A-3	LOCK LEVER 2 ASSY
	81A	PQM30001-279-52	TENSION SPRING
	82	PQ44743A-8	IDLER LEVER ASSY
	82A	PQM30001-344	TENSION SPRING
	82B	PQM30001-301	TENSION SPRING
	82C	PQM30017-5	SLIT WASHER
	83	PQ44746A-2	OFF LEVER ASSY
	84	PQ44585A-8	CAPSTAN BRAKE ASSY
	84A	PQM30001-282-52	SPRING
	85	PQ44843A-3	ARM BASE ASSY
	85B	PQ33511-1-2	CLEANER ARM
	85C	PQ44841-1-4	CANCEL LEVER
	85D	PQM30001-299	TENSION SPRING
	85E	PQM30001-300	TENSION SPRING
	85F	PQM30017-5	SLIT WASHER
	86	SPST2606Z	SCREW
	87	PQ44840B-5	CLEANER BASE ASSY
	87A	PQ44844A	CLEANER BASE SUB ASSY
	87B	PQ44837	CLEANER
	87C	PQ45689	CLEANER HOLDER
	87D	PQM30017-38	SLIT WASHER
	91	PQM30017-5	SLIT WASHER
	92	PQM30017-8	SLIT WASHER
	100	PQ20994B-5	MAIN DECK ASSY
	or	PQ21232B-1	MAIN DECK ASSY
	100A	PQ43849	EARTH PLATE
	100B	SPST2604Z	SCREW

4.5 REMOTE CONTROL UNIT <M5>


8
12
11
9
10
14
2
4
13
5
REMOCON
BOARD ASSY
7
1
3
15
6
16
REMOCON LABEL

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
			REMOTE CONTROLLER <M5>
⚠	1	PQ11237U	REMOTE CONTROLLER
	2	PQ11221-13	COVER(FRONT)
	3	PQ11093	COVER(REAR)
	4	PQ33870-2	BUTTON(1)
	5	PQ21276-13	BUTTON(3)
	6	PQ33609	CAP(BATTERY)
	7	PQ33610	WINDOW(IR)
	8	PQ33915-5	DOOR
	9	PQ33612-1-1	KNOB(JOG)
	10	PQ33613-1-2	KNOB(SHUTTLE)
	11	PQ33914-14	PLATE
	12	PQ45167	WINDOW(DOOR)
	13	PQ45206	INDICATOR(A)
	14	PQ45219-2	KNOB(SLIDE)
	15	SSSF2008M	SCREW
	16	SSSF2006M	SCREW

SECTION 5
ELECTRICAL PARTS LIST

SAFETY PRECAUTION
Parts identified by the ⚠ symbol are critical for safety.Replace only with specified part numbers.

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SWITCH REGULATOR BOARD ASSEMBLY ⟨01⟩

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA	PB20526AD	SWITCH REGULATION BOARD ASSY	
	IC1	LM358N	IC	
	or	BA10358	IC	
	or	LM358P	IC	
	or	XRA10358	IC	
	Q1	2SC4304-LF619	TRANSISTOR	
	Q2	2SC3616(MLK)	TRANSISTOR	
	Q5	2SB1425(EU)	TRANSISTOR	
	D1	10E6-F2	DIODE	
	D2	10E6-F2	DIODE	
	D3	10E6-F2	DIODE	
	D4	10E6-F2	DIODE	
	D5	AU01	FR DIODE	
	or	1SR153-400-T2	FR DIODE	
	D6	AU01	FR DIODE	
	or	1SR153-400-T2	FR DIODE	
	D7	MTZ27BT-77	ZENER DIODE	
	D8	AU01Z	FR DIODE	
	or	ERA18-02-T2	FR DIODE	
	or	1SR153-200-T2	FR DIODE	
	D14	AU01Z	FR DIODE	
	or	ERA18-02-T2	FR DIODE	
	or	1SR153-200-T2	FR DIODE	
	D15	AU01Z	FR DIODE	
	or	ERA18-02-T2	FR DIODE	
	or	1SR153-200-T2	FR DIODE	
	D16	FML-12S	FR DIODE	
	or	MA644	FR DIODE	
	or	5DL2CZ41A	FR DIODE	
	or	FCF06A20	FR DIODE	
	D17	FMB-24	BARRIER DIODE	
	or	F5KQ40B	BARRIER DIODE	
	or	5GWJ2CZ42	SB DIODE	
	D18	AU01Z	FR DIODE	
	or	ERA18-02-T2	FR DIODE	
	or	1SR153-200-T2	FR DIODE	
	D19	MTZ33AT-77	ZENER DIODE	
	D21	AU01Z	FR DIODE	
	or	ERA18-02-T2	FR DIODE	
	or	1SR153-200-T2	FR DIODE	
	D22	MTZV6.2A	ZENER DIODE	
	D23	RD15ES-T1B1	ZENER DIODE	
	R1	YU40344-2R2	WW RESISTOR	2.2Ω, 2W
	or	PERE0505-2R2	WW RESISTOR	2.2Ω, 2W
	R2	QRD161J-334	RESISTOR	330kΩ, 1/6W
	R3	QRD161J-334	RESISTOR	330kΩ, 1/6W
	R4	QRD161J-563	RESISTOR	56kΩ, 1/6W
	R5	QRG029J-683G	OMF RESISTOR	68kΩ, 2W
	R6	QRG029J-201G	OMF RESISTOR	200Ω, 2W
	R7	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R8	QRD161J-561	RESISTOR	560Ω, 1/6W
	R9	QRX014J-R39Z	MF RESISTOR	0.39Ω, 1W
	R10	QRG029J-273A	OMF RESISTOR	27kΩ, 2W
	R12	QRD161J-393	RESISTOR	39kΩ, 1/6W
⚠	R16	QRG02DJ-222X	OMF RESISTOR	2.2kΩ, 2W
	R17	QRD161J-471	RESISTOR	470Ω, 1/6W
	R18	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R19	QRV144F-1071A	CMF RESISTOR	1.09kΩ, 1/4W
	R20	QRV144F-1001A	CMF RESISTOR	1kΩ, 1/4W
⚠	R21	QRZ0077-470X	FUSIBLE RESISTOR	47Ω, 1/4W
	R22	QRD161J-272	RESISTOR	2.7kΩ, 1/6W
	R23	QRD161J-471	RESISTOR	470Ω, 1/6W
	R24	QRV144F-4423AY	CMF RESISTOR	442kΩ, 1/4W
	R25	QRV144F-1002A	CMF RESISTOR	10kΩ, 1/4W
	R26	QRV144F-1182A	CMF RESISTOR	11.8kΩ, 1/4W
⚠	R27	QRZ0052-130	FUSIBLE RESISTOR	13Ω
	R28	QRD161J-331	RESISTOR	330Ω, 1/6W
	R29	QRD161J-103	RESISTOR	10kΩ, 1/6W
⚠	C1	QFZ9037-333	M CAPACITOR	0.033μF, 250V
⚠	C2	QFZ9037-333	M CAPACITOR	0.033μF, 250V
⚠	C3	QFZ9037-333	M CAPACITOR	0.033μF, 250V
⚠	C6	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
⚠	or	QCZ9048-222	CAPACITOR	0.0022μF, 250V
⚠	C7	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
⚠	or	QCZ9048-222	CAPACITOR	0.0022μF, 250V
⚠	C8	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
⚠	C9	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
⚠	C10	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
⚠	C11	QCZ9016-222M	CAPACITOR	0.0022μF, 250V
	C12	PECA0738-826	E CAPACITOR	82μF, 400V
	or	PECA0793-826	E CAPACITOR	82μF, 400V
	C13	QCZ0212-472	CAPACITOR	0.0047μF, 1kV
	C14	QCZ0213-101Z	CAPACITOR	100pF, 1kV
	C15	QFV11HJ-224	TF CAPACITOR	0.22μF, 50V
	or	PECA0780-224Z	M CAPACITOR	0.22μF, 50V
	C16	QFLA1HJ-682Z	M CAPACITOR	0.0068μF, 50V
	C17	QETC1HM-475	E CAPACITOR	4.7μF, 50V
	C18	QETC1JM-336	E CAPACITOR	33μF, 63V
	C19	QEZ0125-277	E CAPACITOR	270μF, 25V
	or	QEZ0138-277	E CAPACITOR	270μF, 25V
	C20	QETC1EM-227	E CAPACITOR	220μF, 25V
	C21	QEGB1CM-827	E CAPACITOR	820μF, 16V
	C22	QETB1CM-108	E CAPACITOR	1000μF, 16V
	C23	QFLA1HJ-102Z	M CAPACITOR	0.001μF, 50V
	C24	QEGB1AM-108	E CAPACITOR	1000μF, 10V
	C25	QETC1HM-476	E CAPACITOR	47μF, 50V
	C26	QETC1VM-336	E CAPACITOR	33μF, 35V
	C27	QFLA1HJ-103Z	M CAPACITOR	0.01μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C28	QEGC1AM-476	E CAPACITOR	47μF, 10V
	C29	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C30	QFLA1HJ-103Z	M CAPACITOR	0.01μF, 50V
	C31	QETB1AM-108	E CAPACITOR	1000μF, 10V
	C34	QETC1CM-107	E CAPACITOR	100μF, 16V
	C35	QFV11HJ-333	MMT CAPACITOR	0.033μF, 50V
	or	QFV41HJ-333	TF CAPACITOR	0.033μF, 50V
	L1	PELN0270-330KZ	COIL	33μH
	or	PELN0628-330KZ	COIL	33μH
	or	PELN0640-330KZ	COIL	33μH
	L2	PELN0270-330KZ	COIL	33μH
	or	PELN0628-330KZ	COIL	33μH
	or	PELN0640-330KZ	COIL	33μH
	L3	PELN0270-330KZ	COIL	33μH
	or	PELN0628-330KZ	COIL	33μH
	or	PELN0640-330KZ	COIL	33μH
	K1	PU60281-4	FERRATE BEADS, X2	
⚠	PC1	PC111YS	PHOTO COUPLER	
⚠	POC1	QMP3980-200	POWER CORD	
⚠	T1	PELN0480	SWITCH TRANS	
⚠	or	PELN0768	SWITCH TRANS	
⚠	BKT1	PQ33738	BRACKET(SWITCH REGULATOR)	
	ETH1	PQ43872	EARTH PLATE, X2	
⚠	HD1	QHS3771-108	STRAIN RELIEF	
⚠	HD2	PU57505	FUSE CLIP, X2	
⚠	HS1	PQ44610-1-2	HEAT SINK	
⚠	HS2	PQ45133	HEAT SINK	
⚠	LF1	PU59707	LINE FILTER	
⚠	or	PELN0255	LINE FILTER	
⚠	LF2	PU61108	LINE FILTER	
⚠	or	PU60347	LINE FILTER	
	SCW1	SDST2605Z	SCREW, X2	
	SCW2	YQM30032-22	SCREW	
	SCW3	SDSG3008Z	SCREW, FOR Q1	
	SCW4	SDSG3006Z	SCREW	
	SCW5	SDSG3008Z	SCREW, X2	
	SCW6	SDSG3006Z	SCREW	
	SLD1	PQ21202-1-3	SHIELD CASE(1)	
	SLD2	PQ33739	SHIELD CASE(2)	
	SLD3	PQ33740	SHIELD CASE(3)	
	SLD4	PQ33741	SHIELD CASE(4)	
	CN1	PU60910-104	WIRE TRAP, 3-6	
	CN2	PU60910-108	CONNECTOR, 2-9	
⚠	CP1	ICP-N25	CIRCUIT PROTECTOR	
⚠	CP2	ICP-N20	CIRCUIT PROTECTOR	
⚠	F1	QMF51E2-1R0	FUSE, 1A	
⚠	or	QMF51E2-1R0J1	FUSE, 1A	

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MAIN BOARD ASSEMBLY 〈03〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	PWBA	PB10708A1-01	MAIN BOARD ASSY
⚠	RF1	PERF0091	RF CONVERTER
	CL1	PU59311-4	WIRE CLAMP, X2
	CL2	PU56729-2	WIRE CLAMP, X2
	ETH1	PQ43012-1-1	EARTH PLATE.FOR RF CONV.
	HD1	PEME0831	HOLDER, X2 FOR TUNER
	HD2	PEME0841	HOLDER, X2 FOR TUNER
	JA1	PU61150	PIN JACK(SW), FOR AUDIO IN
	JA2	PU61149	PIN JACK, FOR AUDIO OUT
	SCW1	SDST2605Z	SCREW, FOR RF CONV.
	SCW2	SDSF2608Z	SCREW, X2, FOR TERMINAL ASSY
	SKT1	PEMC0766	RGB21PIN SOCKET, FOR AV IN/OUT
	SPC1	PU60010	SPACER
	J702	PEMC0824	DIN CONNECTOR
	TP31	PEMC0727	TEST PIN, X20
	CN1	PW30402-BB22M	COAXIAL CORD, FOR RF CONV.

—AUDIO CTL SECTION—

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	IC1	XRA15218N	IC
	or	BA15218N	IC
	IC2	M5223P	IC
	IC3	M5223P	IC
	IC4	M34225M2-110SP	IC
	IC5	LA7151	IC
	IC6	LA7151	IC
	IC501	LA7295	IC
⚠	Q1	2SC1740S(RS)	TRANSISTOR
	Q2	2SC1740S(RS)	TRANSISTOR
	or	2SC3199(GB)-TJK	TRANSISTOR
	Q107	DTA114ES	TRANSISTOR
	Q108	DTC143TS	TRANSISTOR
	Q109	DTC143TS	TRANSISTOR
	Q501	2SC1740S(RS)	TRANSISTOR
	or	2SC3199(GB)-TJK	TRANSISTOR
	Q502	2SC1740S(RS)	TRANSISTOR
	or	2SC3199(GB)-TJK	TRANSISTOR
	Q503	DTA144ES	TRANSISTOR
	Q504	DTA114ES	TRANSISTOR
	Q505	DTA114ES	TRANSISTOR

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	D1	1SS133	DIODE	
		or MA165	DIODE	
	D2	1SS133	DIODE	
		or MA165	DIODE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	D4	1SS133	DIODE	
		or MA165	DIODE	
	D5	1SS133	DIODE	
		or MA165	DIODE	
	D6	1SS133	DIODE	
		or MA165	DIODE	
	D7	1SS133	DIODE	
		or MA165	DIODE	
	D8	MTZ7.5B	ZENER DIODE	
		or RD7.5ES-T1B2	ZENER DIODE	
		or HZS7.5EB2	ZENER DIODE	
	D501	1SS133	DIODE	
		or MA165	DIODE	
	R1	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R2	QRD161J-101	RESISTOR	100Ω, 1/6W
	R4	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R5	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R6	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R7	QRD161J-182	RESISTOR	1.8kΩ, 1/6W
	R8	QRD161J-241	RESISTOR	240Ω, 1/6W
	R9	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R10	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R11	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R12	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R13	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R14	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R15	QRD161J-332	RESISTOR	3.3kΩ, 1/6W
	R16	QRD161J-393	RESISTOR	39kΩ, 1/6W
	R17	QRD161J-221	RESISTOR	220Ω, 1/6W
	R18	QRD161J-273	RESISTOR	27kΩ, 1/6W
	R19	QRD161J-273	RESISTOR	27kΩ, 1/6W
	R22	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R23	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R24	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R25	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R26	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R27	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R28	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R29	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R30	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R31	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R32	QRD161J-124	RESISTOR	120kΩ, 1/6W
	R33	QRD161J-124	RESISTOR	120kΩ, 1/6W
	R34	QRD161J-123	RESISTOR	12kΩ, 1/6W
	R35	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R36	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R37	QRD161J-823	RESISTOR	82kΩ, 1/6W
	R38	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R39	QRD161J-680	RESISTOR	68Ω, 1/6W
	R40	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R41	QRD161J-123	RESISTOR	12kΩ, 1/6W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R42	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R43	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R44	QRD161J-823	RESISTOR	82kΩ, 1/6W
	R45	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R46	QRD161J-680	RESISTOR	68Ω, 1/6W
	R47	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R52	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R53	QVPA606-103Z	V RESISTOR, VOLUME	10kΩ
	R54	QVPA606-103Z	V RESISTOR, BALANCE	10kΩ
	R55	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R56	QRD161J-243	RESISTOR	24kΩ, 1/6W
	R57	QRD161J-243	RESISTOR	24kΩ, 1/6W
	R58	QRD161J-243	RESISTOR	24kΩ, 1/6W
	R59	QRD161J-243	RESISTOR	24kΩ, 1/6W
	R64	QRD161J-132	RESISTOR	1.3kΩ, 1/6W
	R65	QRD161J-152	RESISTOR	1.5kΩ, 1/6W
	R66	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R67	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R68	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R69	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R70	QRD182J-102	RESISTOR	1kΩ, 1/8W
	R71	QRD182J-102	RESISTOR	1kΩ, 1/8W
	R72	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R77	QRD161J-393	RESISTOR	39kΩ, 1/6W
	R78	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R79	QRD161J-393	RESISTOR	39kΩ, 1/6W
	R80	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R81	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R142	QRD162J-332	RESISTOR	3.3kΩ, 1/6W
	R143	QRD162J-332	RESISTOR	3.3kΩ, 1/6W
	R501	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R502	QRD161J-6R8	RESISTOR	6.8Ω, 1/6W
	R503	QRD161J-393	RESISTOR	39kΩ, 1/6W
	R504	QRD161J-8R2	RESISTOR	8R.kΩ, 1/6W
	R505	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R507	QRD161J-471	RESISTOR	470Ω, 1/6W
	R508	QRD161J-181	RESISTOR	180Ω, 1/6W
	R509	QRD161J-274	RESISTOR	270kΩ, 1/6W
	R510	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R511	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R512	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R513	QRD161J-475	RESISTOR	4.7MΩ, 1/6W
	R514	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R515	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R516	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R517	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R518	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R519	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R520	QRD161J-181	RESISTOR	180Ω, 1/6W
	R521	QRD161J-331	RESISTOR	330Ω, 1/6W
	R522	QRD161J-392	RESISTOR	3.9kΩ, 1/6W
	R523	QRD161J-332	RESISTOR	3.3kΩ, 1/6W
	R524	QVPA606-473Z	V RESISTOR, BIAS	1 2Ω
	R525	QRD161J-120	RESISTOR	12Ω, 1/6W
	R527	QRD161J-153	RESISTOR	15kΩ, 1/6W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R528	QRD161J-102	RESISTOR	1kΩ, 1/6W
	RA1	RMLS4J333	RESISTOR ARRAY	33kΩ
	C1	QEK61CM-476	E CAPACITOR	47μF, 16V
	C3	QEK61HM-225	E CAPACITOR	2.2μF, 50V
	C4	QEK61HM-225	E CAPACITOR	2.2μF, 50V
	C5	QEK61CM-106	E CAPACITOR	10μF, 16V
	C6	QEK61CM-106	E CAPACITOR	10μF, 16V
	C7	QEK61CM-106	E CAPACITOR	10μF, 16V
	C8	QEK61CM-106	E CAPACITOR	10μF, 16V
	C11	QEK61HM-105	E CAPACITOR	1μF, 50V
	C12	QEK61HM-105	E CAPACITOR	1μF, 50V
	C13	QEK61HM-105	E CAPACITOR	1μF, 50V
	C14	QEK61EM-475	E CAPACITOR	4.7μF, 25V
	C15	QCBB1HJ-561	CAPACITOR	560pF, 50V
	C17	QEK61CM-476	E CAPACITOR	47μF, 16V
	C18	QEK61CM-476	E CAPACITOR	47μF, 16V
	C19	QEK61HM-105	E CAPACITOR	1μF, 50V
	C20	QCC11EJ-104	CAPACITOR	0.1μF, 25V
	C21	QEK61AM-336	E CAPACITOR	33μF, 10V
	C22	QCC11EJ-104	CAPACITOR	0.1μF, 25V
	C23	QEK61AM-336	E CAPACITOR	33μF, 10V
	C24	QEK60JM-107	E CAPACITOR	100μF, 6.3V
	C30	QEK61CM-106	E CAPACITOR	10μF, 16V
	C31	QEK61HM-105	E CAPACITOR	1μF, 50V
	C32	QCC11EJ-104	CAPACITOR	0.1μF, 25V
	C33	QEK61AM-476	E CAPACITOR	47μF, 10V
	C34	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C35	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C36	QEK61CM-106	E CAPACITOR	10μF, 16V
	C37	QEK61CM-106	E CAPACITOR	10μF, 16V
	C38	QEK61CM-106	E CAPACITOR	10μF, 16V
	C39	QEK61CM-106	E CAPACITOR	10μF, 16V
	C40	QEK61CM-106	E CAPACITOR	10μF, 16V
	C41	QEK61CM-476	E CAPACITOR	47μF, 16V
	C42	QEK61CM-106	E CAPACITOR	10μF, 16V
	C43	QEK61CM-476	E CAPACITOR	47μF, 16V
	C44	QEK61CM-106	E CAPACITOR	10μF, 16V
	C45	QEK61CM-106	E CAPACITOR	10μF, 16V
	C46	QEK61CM-106	E CAPACITOR	10μF, 16V
	C47	QEK61CM-106	E CAPACITOR	10μF, 16V
	C48	QEK61CM-106	E CAPACITOR	10μF, 16V
	C49	QEK61CM-106	E CAPACITOR	10μF, 16V
	C501	QCBB1HJ-331	CAPACITOR	330pF, 50V
	C502	QFLC1HJ-223Z	M CAPACITOR	0.022μF, 50V
	C503	QEK61CM-106	E CAPACITOR	10μF, 16V
	C504	QCC11EJ-102	CAPACITOR	0.001μF, 25V
	C505	QCC11EJ-102	CAPACITOR	0.001μF, 25V
	C506	QFLC1HJ-333Z	M CAPACITOR	0.033μF, 50V
	C507	QEK61CM-106	E CAPACITOR	10μF, 16V
	C508	QCC11EJ-102	CAPACITOR	0.001μF, 25V
	C509	QCC11EJ-102	CAPACITOR	0.001μF, 25V
	C510	QCC11EJ-223	CAPACITOR	0.022μF, 25V
	C511	QCC11EJ-102	CAPACITOR	0.001μF, 25V
	C512	QCC11EJ-152	CAPACITOR	0.0015μF, 25V
	C513	QEK61HM-474	E CAPACITOR	0.47μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C514	PU60550-105	E CAPACITOR	1μF, 50V
	C515	QEK61CM-226	E CAPACITOR	22μF, 16V
	C516	QFLC1HJ-123Z	M CAPACITOR	0.012μF, 50V
	C517	QEK61HM-105	E CAPACITOR	1μF, 50V
	C518	QEK61CM-106	E CAPACITOR	10μF, 16V
	C519	QEK61CM-476	E CAPACITOR	47μF, 16V
	C520	QEK61HM-105	E CAPACITOR	1μF, 50V
	C521	QFLC1HJ-183Z	M CAPACITOR	0.018μF, 50V
	C522	QFLB1HJ-393	M CAPACITOR	0.039μF, 50V
	C524	QEK61HM-335	E CAPACITOR	3.3μF, 50V
	C525	QCXB1CM-472	CAPACITOR	0.0047μF, 16V
	L1	PELN0530-101JZ	COIL	100μH
	L2	PELN0530-101JZ	COIL	100μH
	L3	PELN0530-101JZ	COIL	100μH
	L501	PU58308-103J	COIL	10mH
⚠	CF1	PEVB0352	RESONATOR	
⚠	T501	PU60303	OSC TRANSFORMER	
⚠	T502	PU60304	OSC TRANSFORMER	
	CN1	PU58844-2	CONNECTOR	
	CN2	PU58844-4	CONNECTOR	
	CN3	PU59555-3	CONNECTOR	
	CN4	PU59555-5	CONNECTOR	
	CN5	PU58844-4	CONNECTOR	
	CN6	PU58844-3	CONNECTOR	
	CN7	PU59555-3	CONNECTOR	
	CN8	PU59555-5	CONNECTOR	
	CN9	PU59555-6	CONNECTOR	
	CN10	PU58844-5	CONNECTOR	
	CN12	PEMC0714-010	CONNECTOR	
⚠	CP1	ICP-F10	CIRCUIT PROTECTOR	
⚠	CP501	ICP-F10	CIRCUIT PROTECTOR	

－VIDEO SECTION－

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	IC201	LVA523S	IC
	or	LVA523SA	IC
	or	NJM2235S	IC
	IC280	BA7106LS	IC
	or	XRA7106LS	IC
	IC303	BA7630S	IC
	Q201	2SC1740S(RS)	TRANSISTOR
	or	2SC3199(GB)-TJK	TRANSISTOR
	or	2SC3311A(RS)	TRANSISTOR
	or	2SC536SPA(FG)	TRANSISTOR
	Q202	2SC1740S(RS)	TRANSISTOR
	or	2SC3199(GB)-TJK	TRANSISTOR
	or	2SC3311A(RS)	TRANSISTOR
	or	2SC536SPA(FG)	TRANSISTOR
	Q204	DTC114WS	TRANSISTOR

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	Q206	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	Q207	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	Q208	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	Q210	2SA933S(RS)	TRANSISTOR	
	or	2SA1267(YG)-TJK	TRANSISTOR	
	Q211	2SA933S(RS)	TRANSISTOR	
	or	2SA1267(YG)-TJK	TRANSISTOR	
	Q212	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	Q213	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	Q214	2SA933S(RS)	TRANSISTOR	
	or	2SA1267(YG)-TJK	TRANSISTOR	
	Q218	2SC1740S(RS)	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	Q219	DTA124ES	TRANSISTOR	
	Q303	2SA1267(YG)-TJK	TRANSISTOR	
	or	2SA933S(RS)	TRANSISTOR	
	Q304	2SA1267(YG)-TJK	TRANSISTOR	
	or	2SA933S(RS)	TRANSISTOR	
	Q308	DTC124ES	TRANSISTOR	
	D201	1SS133	DIODE	
	or	MA165	DIODE	
	D202	1SS133	DIODE	
	or	MA165	DIODE	
	D205	1SS133	DIODE	
	or	MA165	DIODE	
	D208	1SS133	DIODE	
	or	MA165	DIODE	
	D215	1SS133	DIODE	
	or	MA165	DIODE	
	D270	1SS133	DIODE	
	or	MA165	DIODE	
	D280	1SS133	DIODE	
	or	MA165	DIODE	
	R201	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R202	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R203	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R204	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R206	QRD161J-101	RESISTOR	100Ω, 1/6W
	R207	QVPA606-472Z	V RESISTOR, LP PB EQUALIZER	4.7kΩ

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R208	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R209	QRD161J-152	RESISTOR	1.5kΩ, 1/6W
	R210	QRD161J-621	RESISTOR	620Ω, 1/6W
	R211	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R212	QRD161J-153	RESISTOR	15kΩ, 1/6W
	R213	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R214	QRD161J-391	RESISTOR	390Ω, 1/6W
	R215	QVPA606-681Z	V RESISTOR, SPREC COLOUR	680Ω
	R216	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R217	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R218	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R219	QRD161J-123	RESISTOR	12kΩ, 1/6W
	R220	QRD161J-273	RESISTOR	27kΩ, 1/6W
	R221	QRD161J-332	RESISTOR	3.3kΩ, 1/6W
	R222	QVPA606-681Z	V RESISTOR, LP REC COLOUR	680Ω
	R227	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R228	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R229	QRD161J-123	RESISTOR	12kΩ, 1/6W
	R230	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R240	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R241	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R242	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R243	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R244	QRD161J-152	RESISTOR	1.5kΩ, 1/6W
	R245	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R247	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R248	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R249	QRD161J-681	RESISTOR	680Ω, 1/6W
	R250	QRD161J-750	RESISTOR	75Ω, 1/6W
	R251	QRD161J-750	RESISTOR	75Ω, 1/6W
	R256	QRD161J-242	RESISTOR	2.4kΩ, 1/6W
	R257	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R258	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R263	QRD161J-681	RESISTOR	680Ω, 1/6W
	R264	QRD161J-331	RESISTOR	330Ω, 1/6W
	R266	QRD161J-821	RESISTOR	820Ω, 1/6W
	R270	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R271	QRD161J-750	RESISTOR	75Ω, 1/6W
	R280	QRD161J-914	RESISTOR	910kΩ, 1/6W
	R281	QRD161J-681	RESISTOR	680Ω, 1/6W
	R282	QRD161J-391	RESISTOR	390Ω, 1/6W
	R283	QRD161J-104	RESISTOR	100kΩ, 1/6W
	R284	QRD161J-273	RESISTOR	27kΩ, 1/6W
	R285	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R286	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R314	QRD161J-335	RESISTOR	3.3MΩ, 1/6W
	R315	QRD123J-391S	RESISTOR	390Ω, 1/2W
	R316	QRD123J-391S	RESISTOR	390Ω, 1/2W
	R317	QRD161J-750	RESISTOR	75Ω, 1/6W
	R400	QRD161J-102	RESISTOR	1kΩ, 1/6W
	C201	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C202	QCSB1HJ-390	CAPACITOR	39pF, 50V

⚠	REF.No	PART No.	PART NAME, DESCRIPTION	
	C203	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C204	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C205	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C206	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C207	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C208	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C209	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C210	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C211	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C212	QETC1CM-476	E CAPACITOR	47μF, 16V
	C213	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C214	QETC1AM-476	E CAPACITOR	47μF, 10V
	C215	QETC0JM-108	E CAPACITOR	1000μF, 6.3V
	C224	QETC1CM-476	E CAPACITOR	47μF, 16V
	C225	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C226	QCSB1HK-4R7	CAPACITOR	4R0μF, 50V
	C229	QCSB1HJ-560	CAPACITOR	56pF, 50V
	C231	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C270	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C271	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C272	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C273	QETC1HM-105	E CAPACITOR	1μF, 50V
	C274	QETC1HM-105	E CAPACITOR	1μF, 50V
	C280	QETC1CM-106	E CAPACITOR	10μF, 16V
	C281	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C282	QCBB1HJ-471	CAPACITOR	470pF, 50V
	C284	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C285	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C286	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C287	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C288	QFN31HJ-471	M CAPACITOR	470pF, 50V
	C289	QCSB1HJ-270	CAPACITOR	27pF, 50V
	C290	QCXB1CN-472	CAPACITOR	0.0047μF, 16V
	C291	QCSB1HK-4R7	CAPACITOR	4R0μF, 50V
	C293	QETC0JM-477	E CAPACITOR	470μF, 6.3V
	C294	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C295	QCT25CH-101	CAPACITOR	100pF
	C309	QEK60JM-476	E CAPACITOR	47μF, 6.3V
	C310	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C314	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C315	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C316	QEK61HM-474	E CAPACITOR	0.47μF, 50V
	C317	QENC1HM-474	NP E CAPACITOR	0.47μF, 50V
	C318	QENC1HM-105	NP E CAPACITOR	1μF, 50V
	C319	QETC1HM-105	E CAPACITOR	1μF, 50V
	C320	QETC1CM-476	E CAPACITOR	47μF, 16V
	C321	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C322	QETC0JM-477	E CAPACITOR	470μF, 6.3V
	L201	PU48530-101K	COIL	100μH
	L202	PU59152-180J	COIL	18μH
	L203	PU48530-101K	COIL	100μH
	L204	PU48530-101K	COIL	100μH
	L205	PU48530-101K	COIL	100μH
	L206	PU59152-121J	COIL	120μH

⚠	REF.No	PART No.	PART NAME, DESCRIPTION	
	L270	PU48530-101K	COIL	100μH
	L280	PU48530-101K	COIL	100μH
	L282	PU60655-2	COIL,MESECAM DET	
	L301	PU48530-101K	COIL	100μH
	L302	PU48530-101K	COIL	100μH
	EQ201	PU54838	EQUALIZER	
	or	PU60714	EQUALIZER	
	CN201	PU58844-6	CONNECTOR	
	CN202	PU61044-10	CONNECTOR	
	CN204	PU59555-8	CONNECTOR	
	CN211	PU59555-8	CONNECTOR	
	CN212	PU58844-2	CONNECTOR	
⚠	CP201	ICP-F20	CIRCUIT PROTECTOR	

−TERMINAL SECTION−

⚠	REF.No	PART No.	PART NAME, DESCRIPTION	
	Q701	2SB810H, J	TRANSISTOR	
	Q704	2SA1267(YG)-TJK	TRANSISTOR	
	or	2SA933S(RS)	TRANSISTOR	
	Q708	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC1740(RS)	TRANSISTOR	
	D701	1SS133	DIODE	
	or	MA165	DIODE	
	D702	1SS133	DIODE	
	or	MA165	DIODE	
	D707	1SS133	DIODE	
	or	MA165	DIODE	
	D708	1SS133	DIODE	
	or	MA165	DIODE	
	R701	QRD161J-393	RESISTOR	39kΩ, 1/6W
	R702	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R705	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R706	QRD161J-273	RESISTOR	27kΩ, 1/6W
	R707	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R708	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R713	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R716	QRD161J-201	RESISTOR	200Ω, 1/6W
	R717	QRD161J-201	RESISTOR	200Ω, 1/6W
	R720	QRD161J-221	RESISTOR	220Ω, 1/6W
	R721	QRD161J-221	RESISTOR	220Ω, 1/6W
	R722	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R723	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R730	QRD162J-0R0	RESISTOR	0Ω, 1/6W
	R731	QRD162J-0R0	RESISTOR	0Ω, 1/6W
	C133	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C134	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C701	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C704	QCBB1HJ-561	CAPACITOR	560pF, 50V
	C705	QCBB1HJ-561	CAPACITOR	560pF, 50V
	C706	QCBB1HJ-102	CAPACITOR	0.001μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C707	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C708	QCBB1HJ-561	CAPACITOR	560pF, 50V
	C709	QCBB1HJ-561	CAPACITOR	560pF, 50V
	C710	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C711	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C712	QETC1CM-226	E CAPACITOR	22μF, 16V
	C721	QCSB1HJ-470	CAPACITOR	47pF, 50V
	C722	QCSB1HJ-470	CAPACITOR	47pF, 50V
	C723	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C724	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C725	QCSB1HJ-330	CAPACITOR	33pF, 50V
	C726	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	L701	PU59152-100J	COIL	10μH
	L702	PU59152-101J	COIL	100μH
	L711	PU59152-3R3J	COIL	3.3μH
	L712	PU59152-3R3J	COIL	3.3μH
	L713	PU59152-3R3J	COIL	3.3μH
	L714	PU59152-3R3J	COIL	3.3μH
	L715	PU59152-3R3J	COIL	3.3μH
	L716	PU59152-3R3J	COIL	3.3μH
	L717	PU59152-3R3J	COIL	3.3μH
	L718	PU59152-3R3J	COIL	3.3μH
	L719	PU59152-1R0J	COIL	1μH
	L720	PU59152-1R0J	COIL	1μH
	L721	PU59152-1R0J	COIL	1μH
	L722	PU59152-1R0J	COIL	1μH
	L723	PU59152-1R0J	COIL	1μH
	L724	PU59152-1R0J	COIL	1μH
	L725	PU59152-1R0J	COIL	1μH
	L726	PU59152-1R0J	COIL	1μH
	L727	PU59152-1R0J	COIL	1μH
	L728	PU48530-1R0K	COIL	1μH
	L729	PU53618-1R0K	COIL	1μH
	L730	PU59152-R47J	COIL	0.47μH
	L731	PU59152-R56J	COIL	0.56μH
	L732	PU59152-R56J	COIL	0.56μH
	K702	PU60281-3	FERRATE BEADS	
	CN701	PEMC0823-009	CONNECTOR(BOARD TO BOARD)	
	CN702	PEMC0823-009	CONNECTOR(BOARD TO BOARD)	
	CN703	PU59555-10	CONNECTOR	
	CN704	PU58844-4	CONNECTOR	
	CN705	PU59555-3	CONNECTOR	
	CN706	PU58844-3R	CONNECTOR	
	CN707	PU59555-11	CONNECTOR	
	CN708	PU58844-2	CONNECTOR	
	CN709	PU59555-8	CONNECTOR	
	CN710	PU58844-2	CONNECTOR	
	CN711	PU59555-4	CONNECTOR	

–REGULATOR SECTION–

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	IC801	UPC2405HF	IC	
	IC802	RE5RE50AA	IC	
	Q801	2SB1425(EU)	TRANSISTOR	
⚠	Q802	2SD1855(F)	TRANSISTOR	
	Q803	2SB941P	TRANSISTOR	
	or	2SA1488	TRANSISTOR	
	Q804	2SC1740S(Q)	TRANSISTOR	
	Q805	2SC1740S	TRANSISTOR	
	Q806	2SA933S	TRANSISTOR	
	or	2SA1267(YG)-TJK	TRANSISTOR	
	D801	1SS133	DIODE	
	or	MA165	DIODE	
	D802	UZ5.1BSC	ZENER DIODE	
	or	RD5.1ES-T1B3	ZENER DIODE	
	or	MTZV5.1C	ZENER DIODE	
	D803	UZ2.0BSA	ZENER DIODE	
	or	MTZV2.0A	ZENER DIODE	
	or	RD2.0ES-T1B1	ZENER DIODE	
	D804	AK04	DIODE	
	R801	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R802	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R803	QRD161J-391	RESISTOR	390Ω, 1/6W
	R804	QRV144F-3740AY	CMF RESISTOR	374Ω, 1/4W
	R805	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R806	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R807	QRD161J-221	RESISTOR	220Ω, 1/6W
	R808	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R809	QRD161J-822	RESISTOR	8.2kΩ, 1/6W
	R810	QRD161J-471	RESISTOR	470Ω, 1/6W
	R811	QVPA606-471Z	V RESISTOR, SWD 5V	470Ω
	R812	QRD161J-103	RESISTOR	10kΩ, 1/6W
	C803	QETC1CM-107	E CAPACITOR	100μF, 16V
	C804	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C805	QETC1AM-107	E CAPACITOR	100μF, 10V
	C806	QFLA1HJ-103Z	M CAPACITOR	0.01μF, 50V
	C807	QETC1CM-476	E CAPACITOR	47μF, 16V
	C808	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C809	QFN31HJ-102	M CAPACITOR	0.001μF, 50V
	C811	QETC0JM-477	E CAPACITOR	470μF, 6.3V
	C812	QETB0JM-107	E CAPACITOR	100μF, 6.3V
⚠	CP802	ICP-F10	CIRCUIT PROTECTOR	

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VIDEO UNIT BOARD ASSEMBLY ⟨05⟩

REF.No	PART No.	PART NAME,DESCRIPTION
PWBA	PB10554H-01	VIDEO UNIT BOARD ASSY
IC1	JCP0016-2	IC
IC2	TL8827P	IC
Q1	2SA1576(QRS)	TRANSISTOR
Q5	2SA1576(QRS)	TRANSISTOR
Q10	2SC4081(QRS)	TRANSISTOR
Q11	DTC144WU	TRANSISTOR
Q12	DTC144WU	TRANSISTOR

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	Q13	DTC144WU	TRANSISTOR	
	Q14	DTC144WU	TRANSISTOR	
	Q18	2SC4081(QRS)	TRANSISTOR	
	Q19	2SC4081(QRS)	TRANSISTOR	
	Q20	2SC4081(QRS)	TRANSISTOR	
	Q21	2SA1576(QRS)	TRANSISTOR	
	Q23	DTC144WU	TRANSISTOR	
	Q24	2SA1576(QRS)	TRANSISTOR	
	Q25	2SC4081(QRS)	TRANSISTOR	
	Q26	2SC4081(QRS)	TRANSISTOR	
	Q28	2SC4081(QRS)	TRANSISTOR	
	Q29	2SC4081(QRS)	TRANSISTOR	
	Q30	2SC4081(QRS)	TRANSISTOR	
	Q31	DTA124EU	TRANSISTOR	
	Q32	DTC144WU	TRANSISTOR	
	Q33	DTC114WU	TRANSISTOR	
	D1	1SS292Y	DIODE	
	D3	1SS133	DIODE	
	or	MA165	DIODE	
	D4	1SS133	DIODE	
	or	MA165	DIODE	
	D5	1SS133	DIODE	
	or	MA165	DIODE	
	D6	1SS133	DIODE	
	or	MA165	DIODE	
	D7	DAN202U	DIODE	
	D11	1SS133	DIODE	
	or	MA165	DIODE	
	D12	1SS133	DIODE	
	or	MA165	DIODE	
	D14	1SS133	DIODE	
	or	MA165	DIODE	
	D15	1SS133	DIODE	
	or	MA165	DIODE	
	D17	DAN202U	DIODE	
	D19	1SS133	DIODE	
	or	MA165	DIODE	
	D20	1SS133	DIODE	
	or	MA165	DIODE	
	D21	1SS133	DIODE	
	or	MA165	DIODE	
	D202	DAN202U	DIODE	
	R1	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	or	NRSA63J-681NC	RESISTOR	680Ω, 1/16W
	R2	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W
	or	NRSA63J-475NC	RESISTOR	4.7MΩ, 1/16W
	R3	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W
	or	NRSA63J-475NC	RESISTOR	4.7MΩ, 1/16W
	R5	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	or	NRSA63J-103NC	RESISTOR	10kΩ, 1/16W
	R6	NRSA63J-361N	RESISTOR	360Ω, 1/16W
	or	NRSA63J-361NC	RESISTOR	360Ω, 1/16W
	R10	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R11	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	or	NRSA63J-681NC	RESISTOR	680Ω, 1/16W
	R12	ERS-L39J-102U	RESISTOR	1kΩ
	R13	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R16	NRSA63J-392N	RESISTOR	3.9kΩ, 1/16W
	or	NRSA63J-392NC	RESISTOR	3.9kΩ, 1/16W
	R17	NVP1301-222N	V.RESISTOR, PB Y LEVEL	2.2kΩ
	R18	NRSA63J-333N	RESISTOR	33kΩ, 1/16W
	or	NRSA63J-333NC	RESISTOR	33kΩ, 1/16W
	R19	NRSA63J-823N	RESISTOR	82kΩ, 1/16W
	or	NRSA63J-823NC	RESISTOR	82kΩ, 1/16W
	R21	NRSA63J-331N	RESISTOR	330Ω, 1/16W
	or	NRSA63J-331NC	RESISTOR	330Ω, 1/16W
	R22	NRSA63J-621N	RESISTOR	620Ω, 1/16W
	or	NRSA63J-621NC	RESISTOR	620Ω, 1/16W
	R23	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	or	NRSA63J-561NC	RESISTOR	560Ω, 1/16W
	R24	NRSA63J-182N	RESISTOR	1.8kΩ, 1/16W
	or	NRSA63J-182NC	RESISTOR	1.8kΩ, 1/16W
	R25	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	or	NRSA63J-222NC	RESISTOR	2.2kΩ, 1/16W
	R26	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R27	NRSA63J-183N	RESISTOR	18kΩ, 1/16W
	or	NRSA63J-183NC	RESISTOR	18kΩ, 1/16W
	R28	NRSA63J-822N	RESISTOR	8.2kΩ, 1/16W
	or	NRSA63J-822NC	RESISTOR	8.2kΩ, 1/16W
	R29	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	or	NRSA63J-562NC	RESISTOR	5.6kΩ, 1/16W
	R30	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	or	NRSA63J-562NC	RESISTOR	5.6kΩ, 1/16W
	R31	NRSA63J-183N	RESISTOR	18kΩ, 1/16W
	or	NRSA63J-183NC	RESISTOR	18kΩ, 1/16W
	R32	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	or	NRSA63J-562NC	RESISTOR	5.6kΩ, 1/16W
	R33	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	or	NRSA63J-562NC	RESISTOR	5.6kΩ, 1/16W
	R37	NRSA63J-162N	RESISTOR	1.6kΩ, 1/16W
	or	NRSA63J-162NC	RESISTOR	1.6kΩ, 1/16W
	R38	NRSA63J-332N	RESISTOR	3.3kΩ, 1/16W
	or	NRSA63J-332NC	RESISTOR	3.3kΩ, 1/16W
	R40	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R41	NVP1301-223N	V RESISTOR, CARRIER	2.2kΩ
	R42	NVP1301-103N	V RESISTOR, DEVIATION	10kΩ
	R43	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	or	NRSA63J-222NC	RESISTOR	2.2kΩ, 1/16W
	R44	NRSA63J-432N	RESISTOR	4.3kΩ, 1/16W
	or	NRSA63J-432NC	RESISTOR	4.3kΩ, 1/16W
	R45	NRSA63J-122N	RESISTOR	1.2kΩ, 1/16W
	or	NRSA63J-122NC	RESISTOR	1.2kΩ, 1/16W
	R46	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R47	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	or	NRSA63J-103NC	RESISTOR	10kΩ, 1/16W
	R48	NRSA63G-911N	RESISTOR	910Ω, 1/16W
	or	NRSA63G-911NC	RESISTOR	910Ω, 1/16W
	R49	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	or	NRSA63J-103NC	RESISTOR	10kΩ, 1/16W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R51	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R52	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R53	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R54	NRSA63J-242N	RESISTOR	2.4kΩ, 1/16W
	or	NRSA63J-242NC	RESISTOR	2.4kΩ, 1/16W
	R55	NRSA63J-392N	RESISTOR	3.9kΩ, 1/16W
	or	NRSA63J-392NC	RESISTOR	3.9kΩ, 1/16W
	R56	NVP1301-152N	V RESISTOR, NC BALANCE	1.5kΩ
	R57	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R58	NRSA63J-821N	RESISTOR	820Ω, 1/16W
	or	NRSA63J-821NC	RESISTOR	820Ω, 1/16W
	R59	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R60	NVP1301-103N	V RESISTOR, EE Y LEVEL	10kΩ
	R61	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R62	NRSA63J-334N	RESISTOR	330kΩ, 1/16W
	or	NRSA63J-334NC	RESISTOR	330kΩ, 1/16W
	R64	NVP1301-332N	V.RESISTOR, WHITE CLIP	3.3kΩ
	R65	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	or	NRSA63J-103NC	RESISTOR	10kΩ, 1/16W
	R66	NRSA63J-434N	RESISTOR	430kΩ, 1/16W
	or	NRSA63J-434NC	RESISTOR	430kΩ, 1/16W
	R67	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R68	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R69	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R70	NRSA63J-471N	RESISTOR	470Ω, 1/16W
	or	NRSA63J-471NC	RESISTOR	470Ω, 1/16W
	R71	NRSA63J-122N	RESISTOR	1.2kΩ, 1/16W
	or	NRSA63J-122NC	RESISTOR	1.2kΩ, 1/16W
	R72	NRSA63J-333N	RESISTOR	33kΩ, 1/16W
	or	NRSA63J-333NC	RESISTOR	33kΩ, 1/16W
	R73	NRSA63J-333N	RESISTOR	33kΩ, 1/16W
	or	NRSA63J-333NC	RESISTOR	33kΩ, 1/16W
	R74	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	or	NRSA63J-681NC	RESISTOR	680Ω, 1/16W
	R75	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	or	NRSA63J-561NC	RESISTOR	560Ω, 1/16W
	R76	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	or	NRSA63J-102NC	RESISTOR	1kΩ, 1/16W
	R77	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	or	NRSA63J-562NC	RESISTOR	5.6kΩ, 1/16W
	R78	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	or	NRSA63J-681NC	RESISTOR	680Ω, 1/16W
	R79	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	or	NRSA63J-222NC	RESISTOR	2.2kΩ, 1/16W
	R81	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W
	or	NRSA63J-475NC	RESISTOR	4.7MΩ, 1/16W
	R83	NRSA63J-272N	RESISTOR	2.7kΩ, 1/16W
	or	NRSA63J-272NC	RESISTOR	2.7kΩ, 1/16W
	R84	NRSA63J-105N	RESISTOR	1MΩ, 1/16W
	or	NRSA63J-105NC	RESISTOR	1MΩ, 1/16W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R85	NRSA63J-155N	RESISTOR	1.5MΩ, 1/16W
	or	NRSA63J-155NC	RESISTOR	1.5MΩ, 1/16W
	R88	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R89	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	R90	NRSA63J-562N	RESISTOR	5.6kΩ, 1/16W
	R208	NRSA63J-472N	RESISTOR	4.7kΩ, 1/16W
	or	NRSA63J-472NC	RESISTOR	4.7kΩ, 1/16W
	C1	NCS31HJ-221A	CAPACITOR	220pF, 50V
	C2	NCS31HJ-220A	CAPACITOR	22pF, 50V
	C4	NCS31HG-561A	CAPACITOR	560pF, 50V
	C8	QCFA1EZ-473	CAPACITOR	0.047μF, 25V
	C9	NCS31HJ-150A	CAPACITOR	15pF, 50V
	C11	NCS31HJ-680A	CAPACITOR	68pF, 50V
	C12	NCS31HJ-220A	CAPACITOR	22pF, 50V
	C13	NCS31HG-121A	CAPACITOR	120pF, 50V
	C14	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C17	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C18	NCS31HJ-820A	CAPACITOR	82pF, 50V
	C19	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C20	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C21	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C22	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C23	QETC1CM-106	E CAPACITOR	10μF, 16V
	C24	QEN61AM-226	NP E CAPACITOR	22μF, 10V
	or	QENC1AM-226	NP E CAPACITOR	22μF, 10V
	C25	QETC1CM-106	E CAPACITOR	10μF, 16V
	C26	PU57601-106MA	E CAPACITOR	10μF
	C27	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C29	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C30	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C31	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C32	NCS31HG-201A	CAPACITOR	200pF, 50V
	C33	NCB31EK-223A	CAPACITOR	0.022μF, 25V
	C34	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C35	NCS31HG-150A	CAPACITOR	15pF, 50V
	C36	QCF81CZ-105	CAPACITOR	1μF, 16V
	C37	NCB31EK-223A	CAPACITOR	0.022μF, 25V
	C38	NCS31HJ-101A	CAPACITOR	100pF, 50V
	C40	NCS31HJ-390A	CAPACITOR	39pF, 50V
	C41	NCB31CK-333A	CAPACITOR	0.033μF, 16V
	C42	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C43	QETC1CM-106	E CAPACITOR	10μF, 16V
	C44	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C45	QETC1CM-106	E CAPACITOR	10μF, 16V
	C46	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C47	QETC1HM-105	E CAPACITOR	1μF, 50V
	C48	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C49	NCB31HK-472A	CAPACITOR	0.0047μF, 50V
	C50	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C51	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C52	QETC1HM-105	E CAPACITOR	1μF, 50V
	C53	QETC1CM-106	E CAPACITOR	10μF, 16V
	C54	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C56	QEN61EM-475	NP E CAPACITOR	4.7μF, 25V
	or	QENC1EM-475	NP E CAPACITOR	4.7μF, 25V
	C57	QETC1EM-335	E CAPACITOR	3.3μF, 25V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C58	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C59	NCF31CZ-473A	CAPACITOR	0.047μF, 16V
	C60	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C61	QETC1HM-474	E CAPACITOR	0.47μF, 50V
	C62	NCB31CK-333A	CAPACITOR	0.033μF, 16V
	C63	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C64	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C65	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C66	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C67	NCF31CZ-473A	CAPACITOR	0.047μF, 16V
	C69	NCB31HK-103A	CAPACITOR	0.01μF, 50V
	C71	NCB31HK-182A	CAPACITOR	0.0018μF, 50V
	C72	QETC1EM-475	E CAPACITOR	4.7μF, 25V
	C73	QETC1HM-105	E CAPACITOR	1μF, 50V
	C74	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C75	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C76	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C77	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C78	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C79	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C80	NCS31HJ-240A	CAPACITOR	24pF, 50V
	C82	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C84	NCS31HJ-180A	CAPACITOR	18pF, 50V
	C91	NCS31HJ-620A	CAPACITOR	62pF, 50V
	C93	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C96	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C97	NCB31CK-333A	CAPACITOR	0.033μF, 16V
	C98	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C99	NCS31HJ-180A	CAPACITOR	18pF, 50V
	C100	NCS31HG-361A	CAPACITOR	360pF, 50V
	C102	QCYA1EK-104	CAPACITOR	0.1μF, 25V
	L1	PU58201-121J	COIL	120μH
	L3	PU59152-330J	COIL	33μH
	L4	PU59152-330J	COIL	33μH
	L6	PU59152-820J	COIL	82μH
	L7	PU59152-221J	COIL	220μH
	L8	PU48530-101K	COIL	100μH
	L9	PU48530-101K	COIL	100μH
	L10	PU59152-680J	COIL	68μH
	L11	PU48530-101K	COIL	100μH
	L12	PU48530-101K	COIL	100μH
	L13	PU48530-561J	COIL	560μH
	L15	PU59152-150J	COIL	15μH
	L16	PU59152-820J	COIL	82μH
	LPF1	PELN0477	LOW PASS FILTER	
	or	PELN0623	LOW PASS FILTER	
	LPF2	PELN0478	LOW PASS FILTER	
	or	PELN0621	LOW PASS FILTER	
	LPF3	PU60128-2	LOW PASS FILTER	
	or	PELN0622	LOW PASS FILTER	
	DL1	PU60490-2	COMB FILTER	
	or	PU60340-3	2H DELAY LINE	
	or	PU58971-5	2H DELAY LINE	
	or	PU60222-2	2H DELAY LINE	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
⚠	X1	PEVB0386	CRYSTAL RESONATOR	
⚠	or	PU60653-2	CRYSTAL RESONATOR	
	SLD1	PQ45174	SHIELD PLATE	
	SLD2	PQ45173-1-1	SHIELD CASE	
	CN1	PEMC0712-114	PIN HEADER	
	CN2	PEMC0712-113	PIN HEADER	
	CN3	PEMC0712-113	PIN HEADER	

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TERMINAL BOARD ASSEMBLY 〈06〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA1	PB20606C-01	TERMINAL BOARD ASSEMBLY	
	R741	QRD161J-750	RESISTOR	75Ω, 1/6W
	R753	QRD161J-221	RESISTOR	220Ω, 1/6W
	R754	QRD161J-221	RESISTOR	220Ω, 1/6W
	R755	QRD161J-153	RESISTOR	15kΩ, 1/6W
	R756	QRD161J-153	RESISTOR	15kΩ, 1/6W
	R757	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R758	QRD161J-103	RESISTOR	10kΩ, 1/6W
	CL1	PU59311-4	WIRE CLAMP, X2	
	SCW1	SDSF2608Z	SCREW, X3 FOR TERMINAL BOARD	
	SCW2	SDSF2608Z	SCREW, X2 FOR RERI.CONNECTOR	
⚠	TB1	PQ11431-3	TERMINAL BOARD	
	J701	PU60664-8	MINI JACK	
	CN705	PU58844-4	CONNECTOR	
	CN708	PU59555-108	CONNECTOR	

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TUNER UNIT BOARD ASSEMBLY 〈08〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA	PB10677A-01	TUNER/IF UNIT BOARD ASSEMBLY	
⚠	TNR1	PERF0066-02	UHF/VHF TUNER	
	IC1	LA7577V	IC	
	Q1	2SB810H, J	TRANSISTOR	
	Q2	2SD1450S, T	TRANSISTOR	
	Q3	2SD1450S, T	TRANSISTOR	
	Q4	2SD1819A(RS)	TRANSISTOR	
	Q5	2SK381(C)	FE TRANSISTOR	
	Q6	DTC114EU	TRANSISTOR	
	Q15	2SD1819A(RS)	TRANSISTOR	
	Q16	DTC144EU	TRANSISTOR	
	Q18	DTC144EU	TRANSISTOR	
	Q19	2SD1819A(RS)	TRANSISTOR	
	Q20	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	Q21	2SA1532(C)	TRANSISTOR	
	Q30	2SA1323(BC)	TRANSISTOR	
	Q31	2SC3354	TRANSISTOR	
	Q32	2SC3354	TRANSISTOR	
	Q33	2SC3313BCTA	TRANSISTOR	
	Q34	2SC1819A(RS)	TRANSISTOR	
	D2	HZT33-02	ZENER DIODE	
	D4	MTZ11B	ZENER DIODE	
	D6	DA204U	ZENER DIODE	
	R2	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R3	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R13	NRSA63J-683N	RESISTOR	68kΩ, 1/16W
	R19	NRSA63J-183N	RESISTOR	18kΩ, 1/16W
	R23	QRD161J-151	RESISTOR	150Ω, 1/6W
	R32	NRSA63J-182N	RESISTOR	1.8kΩ, 1/16W
	R34	NRSA63J-153N	RESISTOR	15kΩ, 1/16W
	R41	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R45	NRSA63J-750N	RESISTOR	75Ω, 1/16W
	R51	QRD161J-331	RESISTOR	330Ω, 1/6W
	R52	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R54	NRSA63J-824N	RESISTOR	820kΩ, 1/16W
	R59	NRSA63J-151N	RESISTOR	150Ω, 1/16W
	R61	NRSA63J-151N	RESISTOR	150Ω, 1/16W
	R63	NRSA63J-112N	RESISTOR	1.1kΩ, 1/16W
	R65	NRSA63J-910N	RESISTOR	91Ω, 1/16W
	R66	NRSA63J-911N	RESISTOR	910Ω, 1/16W
	R67	NRSA63J-331N	RESISTOR	330Ω, 1/16W
	R69	NRSA63J-561N	RESISTOR	560Ω, 1/16W
	R71	NRSA63J-822N	RESISTOR	8.2kΩ, 1/16W
	R72	QVPA606-103Z	V RESISTOR, RF AGC	10kΩ
	R74	NRSA63J-182N	RESISTOR	1.8kΩ, 1/16W
	R76	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R78	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R82	QRSA08J-361YN	RESISTOR	360Ω, 1/10W
	R83	NRSA63J-242N	RESISTOR	2.4kΩ, 1/16W
	R84	NRSA63J-105N	RESISTOR	1MΩ, 1/16W
	R85	NRSA63J-623N	RESISTOR	62kΩ, 1/16W
	R86	NRSA63J-273N	RESISTOR	27kΩ, 1/16W
	R87	NRSA63J-681N	RESISTOR	680Ω, 1/16W
	R89	NRSA63J-471N	RESISTOR	470Ω, 1/16W
	R91	QRSA08J-184YN	RESISTOR	180kΩ, 1/10W
	R92	NRSA63J-223N	RESISTOR	22kΩ, 1/16W
	R93	NRSA63J-123N	RESISTOR	12kΩ, 1/16W
	R94	NRSA63J-822N	RESISTOR	8.2kΩ, 1/16W
	R95	NRSA63J-272N	RESISTOR	2.7kΩ, 1/16W
	R105	NRSA63J-682N	RESISTOR	6.8kΩ, 1/16W
	R120	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R121	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R122	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
	R123	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	R124	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R125	NRSA63J-181N	RESISTOR	180Ω, 1/16W
	R126	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
	R127	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
	R128	QRSA08J-0R0Y	RESISTOR	0Ω, 1/10W
	R129	NRSA63J-912N	RESISTOR	9.1kΩ, 1/16W
	R130	NRSA63J-332N	RESISTOR	3.3kΩ, 1/16W
	R131	NRSA63J-470N	RESISTOR	47Ω, 1/16W
	R132	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	R133	NRSA63J-271N	RESISTOR	270Ω, 1/16W
	R134	QRSA08J-151YN	RESISTOR	150Ω, 1/10W
	R135	QRSA08J-122YN	RESISTOR	1.2kΩ, 1/10W
	R140	NRSA63J-223N	RESISTOR	
	R141	NRSA63J-223N	RESISTOR	22kΩ, 1/10W
	R142	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
	R143	NRSA63J-682N	RESISTOR	6.8kΩ, 1/10W
	C2	NCS31HJ-471A	CAPACITOR	470pF, 50V
	C3	QCBB1HK-102	CAPACITOR	0.001μF, 50V
	C5	QETF1CM-476	E CAPACITOR	47μF, 16V
	C6	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C8	QETF1HM-106	E CAPACITOR	10μF, 50V
	C12	QETF1CM-476	E CAPACITOR	47μF, 16V
	C16	QETF1HM-335	E CAPACITOR	3.3μF, 50V
	C20	QETF1CM-476	E CAPACITOR	47μF, 16V
	C34	NCT06CH-3R0A	CAPACITOR	3pF, 50V
	C35	NCT06CH-4R0A	CAPACITOR	4pF, 50V
	C37	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C38	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C39	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C41	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C42	QETF1CM-476	E CAPACITOR	47μF, 16V
	C43	NCB31HK-222A	CAPACITOR	0.0022μF, 50V
	C44	QETF1CM-476	E CAPACITOR	47μF, 16V
	C47	QFN31HK-683	M CAPACITOR	0.068μF, 50V
	C48	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C50	QETF1HM-474	E CAPACITOR	0.47μF, 50V
	C51	NCS31HJ-750A	CAPACITOR	75pF, 50V
	C53	NCS31HJ-120A	CAPACITOR	12pF, 50V
	C55	NCB31HK-222A	CAPACITOR	0.0022μF, 50V
	C56	QETC1CM-336	E CAPACITOR	33μF, 16V
	C58	QCYA1HK-473	CAPACITOR	0.047μF, 50V
	C59	NCT06CH-510A	CAPACITOR	51pF, 50V
	C60	NCF31HZ-473A	CAPACITOR	0.047μF, 50V
	C61	NCS31HJ-331A	CAPACITOR	330pF, 50V
	C62	QETF1HM-224	E CAPACITOR	0.22μF, 50V
	C63	NCF31HZ-103A	CAPACITOR	0.01μF, 50V
	C68	QETF1HM-106	E CAPACITOR	10μF, 50V
	C69	NCB31HK-222A	CAPACITOR	0.0022μF, 50V
	C71	QETC1HM-104	E CAPACITOR	0.1μF, 50V
	C72	NCB31HK-472A	CAPACITOR	0.0047μF, 50V
	C100	NCF31HZ-103A	CAPACITOR	0.01μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C120	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C121	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C122	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C123	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C124	NCB31HK-102A	CAPACITOR	0.001μF,50V
	C125	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C126	QCYA1HK-102	CAPACITOR	0.001μF,50V
	C127	NCB31HK-103A	CAPACITOR	0.01μF,50V
	C130	QCYA1HK-223	CAPACITOR	0.022μF,50V
	C131	QEKF1HM-474	E.CAPACITOR	0.47μF,50V
	L2	PU60025-1R1	COIL	1.1μH
	L3	PU60025-1R5	COIL	1.5μH
	L4	PU60025-1R0	COIL	1.0μH
	L5	PU60025-1R0	COIL	1.0μH
	L6	PU59152-6R8J	COIL	6.8μH
	L7	PU59152-6R8J	COIL	6.8μH
	L8	PU59152-8R2J	COIL	8.2μH
	L9	PU59152-120J	COIL	12μH
	L10	PU59152-101J	COIL	100μH
	L11	PU59152-220J	COIL	22μH
	CF1	PU32990-2	CERAMIC FILTER	
	CF3	PU49295	CERAMIC FILTER	
	CF4	PU49295-2	N FILTER	
	SAW1	PU35557-7	SAW FILTER	
	SAW2	PU60765	SAW FILTER	
	T1	PELN0444	IF.TRANSFORMER, VCO	
	T3	PELN0442	COIL, FM DETECTOR	
	T4	PELN0449	LC TRAP	
	T5	PELN0806	COIL	
	SLD1	PQ33906-1-5	SHIELD PLATE	
	SLD2	PQ34595	SHIELD CASE	
	CN1	PEMC0825-009	CONNECTOR (BOARD TO BOARD)	
	CN2	PEMC0825-009	CONNECTOR (BOARD TO BOARD)	
	CN9	PU58844-3	CONNECTOR	

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AUDIO UNIT BOARD ASSEMBLY 〈09〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA	PB10613C	AUDIO UNIT BOARD ASSEMBLY	
⚠	IC1	JCP0038	IC	
	Q1	2SC2412K(R)	TRANSISTOR	
	Q2	2SC2412K(R)	TRANSISTOR	
	D1	DAN202K	DIODE	
	or	MA151WK	DIODE	
	R1	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W
	R2	NRSA63J-511N	RESISTOR	510Ω, 1/16W
	R3	NRSA63J-472N	RESISTOR	4.7kΩ, 1/16W
	R4	NRSA63J-513N	RESISTOR	51kΩ, 1/16W
	R5	NVP1301-473NU	V RESISTOR, L DEVIATION	47kΩ
	R6	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R8	NRSA63J-822N	RESISTOR	8.2kΩ, 1/16W
	R9	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R10	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R11	NVP1301-153NZ	V RESISTOR, L CARRIER	15kΩ
	R12	NRSA63J-105N	RESISTOR	1MΩ, 1/16W
	R13	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R14	NRSA63J-183N	RESISTOR	18kΩ, 1/16W
	R16	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R18	NRSA63J-303N	RESISTOR	30kΩ, 1/16W
	R19	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	R20	NRSA63J-222N	RESISTOR	2.2kΩ, 1/16W
	R21	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R22	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R23	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R24	NRSA63J-752N	RESISTOR	7.5kΩ, 1/16W
	R25	NVP1301-153NZ	V RESISTOR, R CARRIER	15kΩ
	R26	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R27	NRSA63J-822N	RESISTOR	8.2kΩ, 1/16W
	R29	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
	R30	NVP1301-473NU	V RESISTOR, R DEVIATION	47kΩ
	R31	NRSA63J-513N	RESISTOR	51kΩ, 1/16W
	R32	NRSA63J-472N	RESISTOR	4.7kΩ, 1/16W
	R33	NRSA63J-511N	RESISTOR	510Ω, 1/16W
	R34	NRSA63J-475N	RESISTOR	4.7MΩ, 1/16W
	R35	NRSA63J-514N	RESISTOR	510kΩ, 1/16W
	R36	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R38	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R41	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R42	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R43	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R44	NRSA63J-154N	RESISTOR	150kΩ, 1/16W
	R45	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R46	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
	R47	NRSA63J-154N	RESISTOR	150kΩ, 1/16W
	R48	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R49	NRSA63J-334N	RESISTOR	330kΩ, 1/16W
	R50	NRSA63J-473N	RESISTOR	47kΩ, 1/16W
	R51	NRSA63J-473N	RESISTOR	47kΩ, 1/16W
	R52	NRSA63J-104N	RESISTOR	100kΩ, 1/16W
	R54	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R55	NRSA63J-102N	RESISTOR	1kΩ, 1/16W
	R56	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	R57	NRSA63J-101N	RESISTOR	100Ω, 1/16W
	C1	NCB31EK-103A	CAPACITOR	0.01μF, 25V
	C2	QETC1AM-336	E CAPACITOR	33μF, 10V
	C3	QFLC1HJ-473Z	M CAPACITOR	0.047μF, 50V
	C4	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C5	QFLC1HJ-333Z	M CAPACITOR	0.033μF, 50V
	C6	QETC1AM-476	E CAPACITOR	47μF, 10V
	C7	QETC1CM-106	E CAPACITOR	10μF, 16V
	C8	QFLC1HJ-103Z	M CAPACITOR	0.01μF, 50V
	C9	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C10	NCB31HK-102A	CAPACITOR	0.001μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C11	QFLC1HJ-104Z	M CAPACITOR	0.1μF, 50V
	C12	QFLC1HJ-223Z	M CAPACITOR	0.022μF, 50V
	C13	NCB31HK-821A	CAPACITOR	820pF, 50V
	C14	QFLC1HJ-392Z	M CAPACITOR	0.0039μF, 50V
	C15	QFLC1HJ-333Z	M CAPACITOR	0.033μF, 50V
	C16	QETC1HM-105	E CAPACITOR	1μF, 50V
	C18	NCB31HK-561A	CAPACITOR	560pF, 50V
	C19	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	C20	NCS31HJ-101A	CAPACITOR	100pF, 50V
	C21	NCS31HJ-101A	CAPACITOR	100pF, 50V
	C22	QFLC1HJ-392Z	M CAPACITOR	0.0039μF, 50V
	C23	NCB31HK-821A	CAPACITOR	820pF, 50V
	C24	QFLC1HJ-223Z	M CAPACITOR	0.022μF, 50V
	C25	QFLC1HJ-104Z	M CAPACITOR	0.1μF, 50V
	C26	NCB31HK-102A	CAPACITOR	0.001μF, 50V
	C27	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C28	QFLC1HJ-103Z	M CAPACITOR	0.01μF, 50V
	C29	QETC1CM-106	E CAPACITOR	10μF, 16V
	C30	QETC1AM-476	E CAPACITOR	47μF, 10V
	C31	QFLC1HJ-333Z	M CAPACITOR	0.033μF, 50V
	C32	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C33	QFLC1HJ-473Z	M CAPACITOR	0.047μF, 50V
	C34	QETC1AM-336	E CAPACITOR	33μF, 10V
	C35	NCB31EK-103A	CAPACITOR	0.01μF, 25V
	C36	QETC1CM-106	E CAPACITOR	10μF, 16V
	C37	QETC1CM-106	E CAPACITOR	10μF, 16V
	C38	QETC1CM-226	E CAPACITOR	22μF, 16V
	C39	QETC1CM-106	E CAPACITOR	10μF, 16V
	C40	QETC1CM-106	E CAPACITOR	10μF, 16V
	C41	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C42	QETC0JM-107	E CAPACITOR	100μF, 6.3V
	C43	QETC1AM-107	E CAPACITOR	100μF, 10V
	C44	QETC1CM-476	E CAPACITOR	47μF, 16V
	C45	QETC1AM-476	E CAPACITOR	47μF, 10V
	C46	QETC1CM-106	E CAPACITOR	10μF, 16V
	C47	NCB31EK-103A	CAPACITOR	0.01μF, 25V
	C48	QETC1CM-106	E CAPACITOR	10μF, 16V
	C49	QETC0JM-476	E CAPACITOR	47μF, 6.3V
	C50	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	C51	QFLC1HJ-822Z	M CAPACITOR	0.0082μF, 50V
	C52	QFLC1HJ-822Z	M CAPACITOR	0.0082μF, 50V
	C53	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C54	QETC1CM-106	E CAPACITOR	10μF, 16V
	C55	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	C56	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C57	QETC1CM-106	E CAPACITOR	10μF, 16V
	C58	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	C59	QETC1HM-105	E CAPACITOR	1μF, 50V
	C60	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	C61	NCF31CZ-104A	CAPACITOR	0.1μF, 16V
	or	NCF31EZ-104A	CAPACITOR	0.1μF, 25V
	L1	PELN0530-101JZ	COIL	100μH

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	L2	PELN0530-101JZ	COIL	100μH
	L3	PELN0530-101JZ	COIL	100μH
	BPF1	PU60610	BPF(1.4MHZ)	
	or	PU60610-S	BPF(1.4MHZ)	
	BPF2	PU60611	BPF(1.8MHZ)	
	or	PU60611-S	BPF(1.8MHZ)	
	JP1	PEMC0919-126	PIN HEADER	
	JP2	PEMC0919-126	PIN HEADER	

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AUDIO CONTROL HEAD BOARD 〈12〉

PWB1	PB40068	AUDIO CONTROL HEAD BOARD	
CN1	PU58844-107	CONNECTOR	

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DEMODULATOR BOARD ASSEMBLY 〈14〉

PWBA	PB10705A	DEMODULATOR BOARD ASSEMBLY	
IC208	TDA8415	IC	
or	TDA8416	IC	
IC209	UPC1391H	IC	
Q206	FMA3	TRANSISTOR	
Q211	2SD1450S, T	TRANSISTOR	
D201	1SS133	DIODE	
R260	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
R261	NRSA63J-122N	RESISTOR	1.2kΩ, 1/16W
R262	NRSA63J-122N	RESISTOR	1.2kΩ, 1/16W
R263	NRSA63J-103N	RESISTOR	10kΩ, 1/16W
R264	QVZ3518-103	V RESISTOR, SEPALATION	10kΩ
R265	NRSA63J-0R0N	RESISTOR	0Ω, 1/16W
R266	QRSA08J-101YN	RESISTOR	100Ω, 1/10W
R267	QRSA08J-101YN	RESISTOR	100Ω, 1/10W
R272	NRSA63J-391N	RESISTOR	390Ω, 1/16W
R273	QRSA08J-271YN	RESISTOR	270Ω, 1/10W
R275	NRSA63J-561N	RESISTOR	560Ω, 1/16W
R276	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
R277	NRSA63J-331N	RESISTOR	330Ω, 1/16W
B215	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
B216	QRSA08J-471YN	RESISTOR	470Ω, 1/10W
C253	QETC1HM-225	E CAPACITOR	2.2μF, 50V
C254	QETC1HM-225	E CAPACITOR	2.2μF, 50V
C257	QCYA1HK-473	CAPACITOR	0.047μF, 50V
C258	QEKF1CM-226	E CAPACITOR	22μF, 16V
C259	QCFA1CZ-224	CAPACITOR	0.22μF, 16V
C260	QEKF1HM-225	E CAPACITOR	2.2μF, 50V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C261	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C264	QERF1CM-336	E CAPACITOR	33μF, 16V
	C265	QCYA1HK-473	CAPACITOR	0.047μF, 50V
	C266	NCT06CH-220A	CAPACITOR	22pF, 50V
	C267	QCYA1HK-473	CAPACITOR	0.047μF, 50V
	C268	QCYA1HK-473	CAPACITOR	0.047μF, 50V
	C269	QCYA1HK-473	CAPACITOR	0.047μF, 50V
	C271	NCF31HZ-473A	CAPACITOR	0.047μF, 50V
	C272	QEKF1CM-226	E CAPACITOR	22μF, 16V
	C273	QEKF1CM-226	E CAPACITOR	22μF, 16V
	C310	NCB31HK-221A	CAPACITOR	220pF, 50V
	C311	NCB31HK-221A	CAPACITOR	220pF, 50V
	L204	PU59152-R22J	COIL	0.22μH
	L205	PU59152-R22J	COIL	0.22μH
	L206	PU59152-R22J	COIL	0.22μH
	CF201	PU52775	CERAMIC FILTER	
	CF202	PU52775-2	CERAMIC FILTER	
	CF203	PEVB0481	C DISCRIMINATER	
	X202	PEVB0479	CRYSTAL RESONATOR	
	K207	PELN0662-Z	FERRATE BEADS	
	CN201	PU59555-3	CONNECTOR	
	CN202	PU58844-3	CONNECTOR	
	CN203	PU59555-3	CONNECTOR	
	CN204	PU58844-3R	CONNECTOR	

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ON SCREEN BORAD ASSEMBLY 〈17〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA2	PB10708A2-01	ON-SCREEN BOARD ASSEMBLY	
	IC901	M50554-263SP	IC	
	IC902	M52684AP	IC	
	Q901	DTA114ES	TRANSISTOR	
	Q902	DTA114ES	TRANSISTOR	
	Q903	2SA933S(RS)	TRANSISTOR	
	or	2SA1267(YG)-TJK	TRANSISTOR	
	Q904	2SC1740S(RS)	TRANSISTOR	
	or	2SC3199(GB)-TJK	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	R901	QRD161J-471	RESISTOR	470Ω, 1/6W
	R902	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R903	QRD161J-681	RESISTOR	680Ω, 1/6W
	R904	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R905	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R906	QRD161J-471	RESISTOR	470Ω, 1/6W
	R907	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R908	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R909	QRD161J-752	RESISTOR	7.5kΩ, 1/6W
	R910	QRD161J-362	RESISTOR	3.6kΩ, 1/6W
	R911	QRD161J-622	RESISTOR	6.2kΩ, 1/6W
	R912	QRD161J-123	RESISTOR	12kΩ, 1/6W
	R913	QRD161J-123	RESISTOR	12kΩ, 1/6W
	R914	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R915	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R916	QRD161J-105	RESISTOR	1MΩ, 1/6W
	R917	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R918	QRD161J-471	RESISTOR	470Ω, 1/6W
	R919	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R920	QRD161J-152	RESISTOR	1.5kΩ, 1/6W
	R921	QRD161J-271	RESISTOR	270Ω, 1/6W
	R922	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R923	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R924	QRD161J-154	RESISTOR	150kΩ, 1/6W
	R925	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R927	QRD161J-151	RESISTOR	150Ω, 1/6W
	C903	QETC0JM-227	E CAPACITOR	220μF, 6.3V
	C904	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	C905	QAT3120-450	TRIMMER CAPACITOR, DOT CLOCK	45pF
	C906	QCSB1HJ-220	CAPACITOR	22pF, 50V
	C907	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C908	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C909	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C910	QCSB1HJ-270	CAPACITOR	27pF, 50V
	C911	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C912	QCSB1HJ-270	CAPACITOR	27pF, 50V
	C915	QCT25CH-150	CAPACITOR	15pF
	C916	QAT3120-200	TRIMMER CAPACITOR, COLOUR BURST	20pF,
	C917	QCT25CH-5R0	CAPACITOR	5pF
	C918	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C919	QETC0JM-227	E CAPACITOR	220μF, 6.3V
	C920	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C921	QCBB1HJ-331	CAPACITOR	330pF, 50V
	C922	QFN31HJ-222	M CAPACITOR	0.0022μF, 50V
	C923	QER61HM-105	E CAPACITOR	1μF, 50V
	C924	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C925	QCSB1HJ-220	CAPACITOR	22pF, 50V
	C926	QETC1CM-106	E CAPACITOR	10μF, 16V
	C927	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C928	QCXB1CN-152	CAPACITOR	0.0015μF, 16V
	C929	QCSB1HJ-330	CAPACITOR	33pF, 50V
	C932	QETC1HM-335	E CAPACITOR	3.3μF, 50V
	C933	QCFB1EZ-223	CAPACITOR	0.022μF, 25V
	L901	PU54223-101K	COIL	100μH
	L902	PU58333-220J	COIL	22μH
	L903	PU59152-8R2J	COIL	8.2μH
	L904	PU59152-150J	COIL	15μH
	L905	PU59152-220J	COIL	22μH
	L906	PU59152-220J	COIL	22μH
	L907	PU54223-101K	COIL	100μH
⚠	CF901	PU60086	RESONATOR	
⚠	X901	PU60908	CRYSTAL RESONATOR	
	TP901	PEMC0727	TEST PIN	
	TP902	PEMC0727	TEST PIN	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION
	CN901	PU59555-6	CONNECTOR
	CN902	PEMC0713-106	HOUSING
	CN903	PEMC0713-105	HOUSING
	CN904	PEMC0714-006	CONNECTOR
	CN905	PEMC0714-005	CONNECTOR

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TIMER BOARD ASSEMBLY ⟨20⟩

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA1	PB10693C1-01	TIMER BOARD ASSEMBLY	
	IC1	UPD75218CW-011	IC	
	IC2	IC-PST523H-2	IC	
	Q1	2SC3199(G)	TRANSISTOR	
	or	2SC1740S(RS)	TRANSISTOR	
	or	2SC3311A(RS)	TRANSISTOR	
	or	2SC536SPA(FG)	TRANSISTOR	
	D1	RD9.1ES-T1B2	ZENER DIODE	
	D2	1SS133	DIODE	
	D3	1SS133	DIODE	
	D4	11ES2	DIODE	
	D5	11ES2	DIODE	
	D6	1SS133	DIODE	
	D7	1SS133	DIODE	
	D8	1SS133	DIODE	
	D24	1SS133	DIODE	
	D28	1SS133	DIODE	
	D34	1SS133	DIODE, TYPE D3	
	R1	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R4	QRD161J-682	RESISTOR	6.8kΩ, 1/6W
	R5	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R6	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R7	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R8	QRD162J-103	RESISTOR	10kΩ, 1/6W
	R9	QRD162J-103	RESISTOR	10kΩ, 1/6W
	R10	QRD162J-103	RESISTOR	10kΩ, 1/6W
	R11	QRD162J-103	RESISTOR	10kΩ, 1/6W
	R12	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R13	QRD161J-271	RESISTOR	270Ω, 1/6W
	R14	QRD161J-271	RESISTOR	270Ω, 1/6W
	R15	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R16	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R17	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R25	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R26	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R30	QRD161J-224	RESISTOR	220kΩ, 1/6W
	R31	QRD161J-151	RESISTOR	150Ω, 1/6W
	R32	QRD161J-271	RESISTOR	270Ω, 1/6W
	R33	QRD161J-271	RESISTOR	270Ω, 1/6W
	R40	QRD161J-271	RESISTOR	270Ω, 1/6W
	R41	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R42	QRD161J-561	RESISTOR	560Ω, 1/6W
	R43	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R44	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R45	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R50	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R51	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R52	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R53	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R54	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R55	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R56	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R57	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R58	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R60	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R61	QRD161J-333	RESISTOR	33kΩ, 1/6W
	R62	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R70	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R71	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	RA1	QRB047J-333	RESISTOR ARRAY	
	or	QRB049J-333	RESISTOR ARRAY	
	RA2	QRB047J-104	NETWORK RESISTOR	
	or	QRB049J-104	NETWORK RESISTOR	
	RA3	QRB077J-104	RESISTOR ARRAY	
	or	QRB079J-104	RESISTOR ARRAY	
	RA4	QRB047J-103	RESISTOR ARRAY	
	or	QRB049J-103	RESISTOR ARRAY	
	RA5	QRB057J-103	RESISTOR ARRAY	
	C3	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C4	QER61CM-106	E CAPACITOR	10μF, 16V
	C5	PECA0810-105	E CAPACITOR	1μF
	or	QEA40HZ-105	E CAPACITOR (DOUBLE)	1 F, 5.5V
	C6	QAT3120-200	TRIMMER CAPACITOR, TIMER CLOCK	20pF
	C7	QCSB1HJ-120	CAPACITOR	12pF, 50V
	C11	QER61CM-106	E CAPACITOR	10μF, 16V
	C13	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C15	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C16	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C17	QCC11EJ-104	CAPACITOR	0.1μF, 25V
	C18	QER61CM-106	E CAPACITOR	10μF, 16V
	C19	QER61CM-106	E CAPACITOR	10μF, 16V
	C21	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C22	QCBB1HJ-151	CAPACITOR	150pF, 50V
	C23	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C24	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C25	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C26	QCBB1HJ-221	CAPACITOR	220pF, 50V
	C27	QCBB1HJ-151	CAPACITOR	150pF, 50V
	C28	QCBB1HJ-101	CAPACITOR	100pF, 50V
	C29	QCBC1HJ-101	CAPACITOR	100pF, 50V
⚠	X1	PU60226-4	CRYSTAL RESONATOR	
	CN1	PU59555-109	CONNECTOR	
	CN2	PU60910-13	CONNECTOR	
	CN3	PU59555-6	CONNECTOR	
	CN4	PU59555-3	CONNECTOR	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	CN5	PU59555-7	CONNECTOR	
	CN6	PU60910-8	CONNECTOR	
⚠	CP1	ICP-F10	CIRCUIT PROTECTOR	

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SW/DISPLAY BOARD ASSEMBLY 〈28〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA2	PB10693C2-01	SWITCH/DISPLAY BOARD ASSEMBLY	
	IC101	MSC7112-01SS	IC	
	Q101	2SK658	FE TRANSISTOR	
	D102	RD3.6ES-T1B1	ZENER DIODE	
	D201	SLH-34MC3F	LE DIODE,AUTO TRACK	
	D203	SLH-34VC3F	LE DIODE,STEREO	
	D204	SLH-34MC3F	LE DIODE,BILINGUAL	
	D229	1SS133	DIODE,REPEAT	
	R101	QRD161J-102	RESISTOR	1kΩ,1/6W
	R102	QRD161J-102	RESISTOR	1kΩ,1/6W
	R103	QRD161J-222	RESISTOR	2.2kΩ,1/6W
	R104	QRD161J-273	RESISTOR	27kΩ,1/6W
	R105	QRD161J-333	RESISTOR	33kΩ,1/6W
	R107	QRD161J-102	RESISTOR	1kΩ,1/6W
	R108	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R109	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R110	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R111	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R112	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R113	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R201	QRD161J-121	RESISTOR	120Ω,1/6W
	R203	QRD161J-121	RESISTOR	120Ω,1/6W
	R204	QRD161J-121	RESISTOR	120Ω,1/6W
	C101	QCBB1HJ-101	CAPACITOR	100pF,50V
	C102	QETC1HM-104	E CAPACITOR	0.1μF,50V
	C103	QER60JM-107	E CAPACITOR	100μF,6.3V
	C104	QCVB1CN-103	CAPACITOR	0.01μF,16V
	C105	QER61VM-106	E CAPACITOR	10μF,35V
	C115	QCSB1HJ-330	CAPACITOR	33pF,50V
	C116	QCSB1HJ-330	CAPACITOR	33pF,50V
	C117	QCF11HP-473	CAPACITOR	0.047μF,50V
	L101	PU59152-390J	COIL	39μH
	S13	PESW0525-02Z	TACT SWITCH,MIX	
		or PU60392-2-2	TACT SWITCH	
		or PU60975-2Z	TACT SWITCH	
	S14	PESW0525-02Z	TACT SWITCH,SIMUL	
		or PU60392-2-2	TACT SWITCH	
		or PU60975-2Z	TACT SWITCH	
	S15	PESW0525-02Z	TACT SWITCH,A.DUB	
		or PU60392-2-2	TACT SWITCH	
		or PU60975-2Z	TACT SWITCH	
	S16	PESW0525-02Z	TACT SWITCH,INSERT	
		or PU60392-2-2	TACT SWITCH	
		or PU60975-2Z	TACT SWITCH	
	S27	PESW0525-02Z	TACT SWITCH,TV/VIDEO	
		or PU60392-2-2	TACT SWITCH	
		or PU60975-2Z	TACT SWITCH	
	S405	PESW0559-03	SLIDE SWITCH,REPEAT	
	FDP1	PEDP0079	FLUORESCENT DISPLAY PANEL	
	HD1	PQM30038-2-2	LED HOLDER,X3	
	HD2	PQ34413	FDP HOLDER(L)	
	HD3	PQ34414	FDP HOLDER(R)	
	CN7	PU59555-5	CONNECTOR	
	CN8	PU61044-104	WIRE TRAP	
	CN9	PU59555-3	CONNECTOR	
	CN12	PEMC0878-010	CONNECTOR	
	CN13	PU59555-7	CONNECTOR	
	CN14	PU59555-7	CONNECTOR	

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IFR BOARD ASSEMBLY 〈34〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA	PB20598G2	IFR BOARD ASSEMBLY	
	IC1	GP1U541X	IR DETECT UNIT	
		or GP1U801X	IR DETECT UNIT	
	CN10	PU59555-3	CONNECTOR	

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SW/JACK BOARD ASSEMBLY 〈37〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA1	PB20598G1	SWITCH/JACK BOARD ASSEMBLY	
	D1	SLR-55VC3F	LE DIODE, OPERATE	
	D3	1SS133	DIODE	
		or MA165	DIODE	
	D4	1SS133	DIODE	
		or MA165	DIODE	
	R3	PERE0483-02	V RESISTOR,H.P LEVEL(R3 R4)	
	R7	PERE0513	V RESISTOR, REC BALANCE	
	R8	PERE0534	V RESISTOR, REC MAIN	
	R9	PERE0514	V RESISTOR, MIC MIX	
	R10	QRD161J-271	RESISTOR	270Ω,1/6W
	C3	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C4	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C11	QCSB1HJ-620	CAPACITOR	62pF,50V
	L3	PU59152-1R0J	COIL	1μH

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	L4	PU59152-1R0J	COIL	1μH
	L5	PU59152-1R0J	COIL	1μH
	L11	PU59152-R22J	COIL	0.22μH
	LC1	PU59885-223	N FILTER	
	LC2	PU59885-223	N FILTER	
	S1	PU57551	TACT SWITCH	
	or	PU53598-2	TACT SWITCH, OPERATE	
	K1	PU60281-5	FERRATE BEADS	
	CL1	PU56729-2	WIRE CLAMP, X2	
	HD1	PQM30038-1-2	LED HOLDER, FOR D1(LED)	
	JA1	PU60664	MINI JACK, H.PHONE	
	JA2	PU60664-3	MINI JACK, MIC	
	JA3	PU60664-7	MINI JACK, PAUSE-IN	
	JA4	PEMC0946	PIN JACK, FRONT AV	
	SPC1	PU59210-003	W.LOKING SPACER, X2, IFR BOARD	
	CN1	PU58844-3	CONNECTOR	
	CN2	PU59555-5	CONNECTOR	
	CN3	PU58844-5	CONNECTOR	
	CN4	PU58844-2R	CONNECTOR	
	CN5	PU58844-2	CONNECTOR	
	CN6	PU58844-3R	CONNECTOR	
	CN7	PU59555-5	CONNECTOR	

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UPPER DRUM BOARD 〈41〉

REF.No	PART No.	PART NAME,DESCRIPTION
PWB	PDM3293	BOARD (UPPER DRUM)

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PRE/REC AMP BOARD ASSEMBLY 〈43〉

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA	PB10592H	PRE/REC BOARD ASSY	
	IC1	BA7743FS	IC	
	IC201	AN3386NK-A	IC	
	Q1	DTA114EU	TRANSISTOR	
⚠	Q2	2SA1036K	TRANSISTOR	
	Q201	2SA1576(QRS)	TRANSISTOR	
	Q202	2SC4081(QRS)	TRANSISTOR	
	Q203	2SC4081(QRS)	TRANSISTOR	
	Q204	DTC144WU	TRANSISTOR	
	Q205	DTC144WU	TRANSISTOR	
	Q206	DTC144WU	TRANSISTOR	
	D2	DAN202U	DIODE	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	D201	1SS133	DIODE	
	or	MA165	DIODE	
	D202	1SS133	DIODE	
	or	MA165	DIODE	
	D203	MA141K	DIODE	
	or	DA114	DIODE	
	D204	1SS133	DIODE	
	or	MA165	DIODE	
	D205	1SS133	DIODE	
	or	MA165	DIODE	
	R1	QRSA08J-224YN	RESISTOR	220kΩ, 1/10W
⚠	R2	NRVA62D-120N	RESISTOR	12Ω, 1/16W
	R3	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
	R4	QRSA08J-152YN	RESISTOR	1.5kΩ, 1/10W
	R5	QRSA08J-391YN	RESISTOR	390Ω, 1/10W
	R6	QRSA08J-391YN	RESISTOR	390Ω, 1/10W
	R7	QRSA08J-152YN	RESISTOR	1.5kΩ, 1/10W
	R8	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
	R9	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
	R12	QRSA08J-473YN	RESISTOR	47kΩ, 1/10W
	R16	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
	R17	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
	R18	QRSA08J-822YN	RESISTOR	8.2kΩ, 1/10W
	R19	QRSA08J-472YN	RESISTOR	4.7kΩ, 1/10W
	R20	QRSA08J-103YN	RESISTOR	10kΩ, 1/10W
	R21	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
	R201	QRSA08J-102YN	RESISTOR	1kΩ, 1/10W
	R202	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
	R203	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
	R204	QRSA08J-391YN	RESISTOR	390Ω, 1/10W
	R205	QRSA08J-391YN	RESISTOR	390Ω, 1/10W
	R206	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
	R207	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
	R208	QRSA08J-222YN	RESISTOR	2.2kΩ, 1/10W
	R209	QRSA08J-681YN	RESISTOR	680Ω, 1/10W
	R210	QRSA08J-821YN	RESISTOR	820Ω, 1/10W
	R211	QRSA08J-122YN	RESISTOR	1.2kΩ, 1/10W
	R212	QRSA08J-561YN	RESISTOR	560Ω, 1/10W
	R214	QRSA08J-122YN	RESISTOR	1.2kΩ, 1/10W
	R215	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
	R216	QRSA08J-153YN	RESISTOR	15kΩ, 1/10W
	R217	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
	R218	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
	R219	QRD161J-334	RESISTOR	330kΩ, 1/6W
	R220	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R221	QRSA08J-393YN	RESISTOR	39kΩ, 1/10W
	R223	NRVA02D-5232AY	RESISTOR	52kΩ, 1/10W
	R224	QRSA08J-684YN	RESISTOR	680kΩ, 1/10W
	R225	QRSA08J-562YN	RESISTOR	5.6kΩ, 1/10W
	R226	QRSA08J-271YN	RESISTOR	270Ω, 1/10W
	R227	QRSA08J-361YN	RESISTOR	360Ω, 1/10W
	R228	QRSA08J-331YN	RESISTOR	330Ω, 1/10W
	R229	QRSA08J-361YN	RESISTOR	360Ω, 1/10W
	R230	QRSA08J-104YN	RESISTOR	100kΩ, 1/10W
	R231	QRSA08J-154YN	RESISTOR	150kΩ, 1/10W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C1	QCYA1EK-104	CAPACITOR	0.1μF, 25V
	C2	QCSA1HJ-101	CAPACITOR	100pF, 50V
	C3	QCFA1CZ-105	CAPACITOR	1μF, 16V
	C4	QCSA1HJ-221	CAPACITOR	220pF, 50V
	C5	QCSA1HJ-471	CAPACITOR	470pF, 50V
	C6	QCSA1HJ-471	CAPACITOR	470pF, 50V
	C7	QCSA1HJ-221	CAPACITOR	220pF, 50V
	C8	QCFA1CZ-105	CAPACITOR	1μF, 16V
	C9	QER60JM-107	E CAPACITOR	100μF, 6.3V
	C10	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C12	QCFA1CZ-224	CAPACITOR	0.22μF, 16V
	C13	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C14	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C15	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C16	QER60JM-107	E CAPACITOR	100μF, 6.3V
	C17	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C18	QCYA1EK-103	CAPACITOR	0.01μF, 25V
	C201	QEK60JM-476	E CAPACITOR	47μF, 6.3V
	C202	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C203	QCSA1HJ-681	CAPACITOR	680pF, 50V
	C204	QCSA1HJ-150	CAPACITOR	15pF, 50V
	C205	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C206	QCSA1HJ-330	CAPACITOR	33pF, 50V
	C207	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C208	QCSA1HJ-560	CAPACITOR	56pF, 50V
	C209	QCSA1HJ-471	CAPACITOR	470pF, 50V
	C210	QCSA1HJ-160	CAPACITOR	16pF, 50V
	C211	QCSA1HJ-100	CAPACITOR	10pF, 50V
	C212	QCSA1HJ-470	CAPACITOR	47pF, 50V
	C213	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C214	QCSA1HJ-391	CAPACITOR	390pF, 50V
	C215	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C216	QER61CM-476	E CAPACITOR	47μF, 16V
	C217	QFV11HJ-563	MMT CAPACITOR	0.056μF, 50V
	C218	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C219	QCFA1EZ-104	CAPACITOR	0.1μF, 25V
	C220	QCSA1HJ-111	CAPACITOR	110pF, 50V
	C221	QCSA1HJ-181	CAPACITOR	180pF, 50V
	C222	QCSA1HJ-131	CAPACITOR	130pF, 50V
	C223	QCSA1HJ-131	CAPACITOR	130pF, 50V
	C224	QCY81EK-104	CAPACITOR	0.1μF, 25V
	C225	QCY81EK-104	CAPACITOR	0.1μF, 25V
	C226	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C227	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C228	QCY81EK-104	CAPACITOR	0.1μF, 25V
	C229	QCY81EK-104	CAPACITOR	0.1μF, 25V
	C230	QER61AM-685	E CAPACITOR	6.8μF, 10V
	C231	QCF81EZ-224	CAPACITOR	0.22μF, 25V
	C232	QCFA1HZ-103	CAPACITOR	0.01μF, 50V
	C234	QCSA1HJ-180	CAPACITOR	18pF, 50V
	C236	QFV11HJ-333	MMT CAPACITOR	0.033μF, 50V
	C240	QCYA1EK-683	CAPACITOR	0.068μF, 25V
⚠	L1	PU48530-101J	COIL	100μH
⚠	L2	PU48530-471J	COIL	470μH
	L201	PU54223-101K	COIL	100μH
	L202	PU59988-560J	COIL	56μH

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	L203	PU59988-220JY	COIL	22μH
	L204	PU59988-470J	COIL	47μH
	L205	PU59988-470J	COIL	47μH
	L206	PU59988-121JY	COIL	120μH
	L207	PU59988-330J	COIL	33μH
	L208	PU54223-470K	COIL	47μH
	SLD1	PQ33876-1-1	SHIELD CASE(1), FOR PRE/REC	
	CN1	PU59555-103	CONNECTOR	
	CN201	PU58844-106	CONNECTOR	
	CN202	PU60910-110	CONNECTOR	
	CN203	PU59974-13	CONNECTOR	
	CN204	PU58844-3	CONNECTOR	

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FLYING ERASE BOARD ASSEMBLY ⟨46⟩

—FLYING ERASE SECTION—

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	PWBA4	PB10708A4-01	FLYING ERASE BOARD ASSEMBLY	
	Q151	2SA933S(Q)	TRANSISTOR	
	or	2SA1267(Y)-TJK	TRANSISTOR	
	Q152	2SC1741S(QR)	TRANSISTOR	
	Q153	2SA933S(Q)	TRANSISTOR	
	or	2SA1267(Y)-TJK	TRANSISTOR	
	Q154	2SD639R	TRANSISTOR	
	Q155	2SD639R	TRANSISTOR	
	D151	UZ8.2BSC	ZENER DIODE	
	D152	1SS133	DIODE	
	or	MA165	DIODE	
	R151	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R152	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R153	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
	R154	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R155	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R156	QRD161J-104	RESISTOR	100kΩ, 1/6W
	R157	QRD161J-121	RESISTOR	120Ω, 1/6W
	R158	QRD161J-104	RESISTOR	100kΩ, 1/6W
	R159	QRD161J-121	RESISTOR	120Ω, 1/6W
	R160	QRD161J-101	RESISTOR	100Ω, 1/6W
	C151	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C152	QCC31EJ-123	CAPACITOR	0.012μF, 25V
	C153	QCSB1HJ-560	CAPACITOR	56pF, 50V
	C154	QCBB1HJ-820	CAPACITOR	82pF, 50V
	C155	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C156	QCBB1HJ-820	CAPACITOR	82pF, 50V
	C158	QCT25UJ-181	CAPACITOR	180pF
	C159	QCT05UJ-330	CAPACITOR	33pF
	L151	PU48530-560J	COIL	56μH
	L152	PU48530-3R3K	COIL	3.3μH
	L153	PU48530-3R3K	COIL	3.3μH
	L154	PU59152-101J	COIL	100μH
⚠	T151	PU56175	S.TRANS	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	SLD1	PU60779	SHIELD CASE	
	SLD2	PU60781	SHIELD COVER	
	SLD3	PU60780	SHIELD PLATE	
	CN151	PU58844-3	CONNECTOR	
	CN153	PU59555-4	CONNECTOR	

—HEADPHONE AMP SECTION—

	IC104	XRA15218N	IC	
	or	BA15218N	IC	
	R144	QRD162J-104	RESISTOR	100kΩ, 1/6W
	R145	QRD161J-124	RESISTOR	120kΩ, 1/6W
	R146	QRD161J-104	RESISTOR	100kΩ, 1/6W
	R147	QRD161J-124	RESISTOR	120kΩ, 1/6W
	R148	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R149	QRD161J-102	RESISTOR	1kΩ, 1/6W
	R171	QRD161J-560	RESISTOR	56Ω, 1/6W
	R172	QRD161J-560	RESISTOR	56Ω, 1/6W
	C128	QETC1CM-106	E CAPACITOR	10μF, 16V
	C129	QETB1CM-106	E CAPACITOR	10μF, 16V
	C130	QETC1CM-476	E CAPACITOR	47μF, 16V
	C131	QETB1AM-476	E CAPACITOR	47μF, 10V
	C132	QETB1AM-476	E CAPACITOR	47μF, 10V
	CN154	PU58844-4	CONNECTOR	
	CN155	PU58844-3	CONNECTOR	

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DECK TERMINAL BOARD ASSEMBLY ⟨51⟩

	PWBA1	PB10481E1-01	DECK TERMINAL BOARD ASSRMBLY	
	Q1	PU60625	END SENSOR	
	R3	QRD161J-331	RESISTOR	330Ω, 1/6W
	R4	QRD161J-331	RESISTOR	330Ω, 1/6W
	R5	QRD161J-331	RESISTOR	330Ω, 1/6W
	R8	NTH5D473KB	THERMISTOR	
	or	ERT-D2ZHK473S	NEGA THERMISTOR	
	or	NTH5D473KA	RESISTOR	
	C1	QCVB1CM-103	CAPACITOR	0.01μF, 16V
	PS1	PS5705HR	PH INTERRUPTER	
	PS2	PS5705HR	PH INTERRUPTER	
	CN1	PEMC0722-017	WIRE TRAP	
	or	PEMC0753-017	WIRE TRAP	
	CN2	PU60642	CONNECTOR(7PIN)	
	CN3	PU60640	CONNECTOR(4PIN)	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	

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LOADING MDA BOARD ASSEMBLY ⟨55⟩

	PWBA2	PB10481A2-01	LOADING MDA BOARD ASSY	
⚠	IC1	BA6418N	IC	
⚠	or	XRA6418N	IC	
	C1	QETA1CM-336	E CAPACITOR	33μF, 16V
	CN1	PU59555-104	CAP HOUSING	

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CASSETTE HOUSING BOARD ⟨56⟩

	PWB1	PB40061	CASSETTE HOUSING BOARD	
	Q2	PN268VI	PHOTO TRANSISTOR	
	D1	UZ5.1BSB	ZENER DIODE	
	or	RD5.1ESB2	ZENER DIODE	
	R1	QRD162J-473	RESISTOR	47kΩ, 1/6W
	R2	QRD182J-681	RESISTOR	680Ω, 1/8W
	R3	QRD122J-102S	RESISTOR	1kΩ, 1/2W
	C1	QCC11EJ-103	CAPACITOR	0.01μF, 25V
	PHS3	PU60629	CASSETTE SENSOR	
	TH1	ERT-D2FHJ503S	THERMISTOR	
	or	ERT-D2FHK503S	THERMISTOR	
	or	PESC1084	NEGA THERMISTOR	
	CN2	PU60639	4PIN SOCKET	
	or	PEMC0971	4PIN SOCKET	

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SOUND MENU BOARD ASSEMBLY ⟨71⟩

	PWBA3	PB10708A3-01	SOUND MENU BOARD ASSEMBLY	
	IC101	XRA15218	IC	
	or	BA15218	IC	
	IC102	XRA15218	IC	
	or	BA15218	IC	
	IC103	TDA3810	IC	
	Q101	DTA144ES	TRANSISTOR	
	Q102	DTA144ES	TRANSISTOR	
	Q103	2SC1740S	TRANSISTOR	
	or	2SC3199-TJK	TRANSISTOR	
	Q104	2SC1740S	TRANSISTOR	
	or	2SC3199-TJK	TRANSISTOR	

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	Q105	2SC1740S	TRANSISTOR	
	or	2SC3199-TJK	TRANSISTOR	
	Q106	2SC1740S	TRANSISTOR	
	or	2SC3199-TJK	TRANSISTOR	
	D101	1SS133	DIODE	
	or	MA165	DIODE	
	D102	1SS133	DIODE	
	or	MA165	DIODE	
	R101	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R102	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R103	QRD161J-334	RESISTOR	330kΩ, 1/6W
	R104	QRD161J-334	RESISTOR	330kΩ, 1/6W
	R105	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R106	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R107	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R108	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R109	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R110	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R111	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R112	QRD161J-562	RESISTOR	5.6kΩ, 1/6W
	R113	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R114	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R115	QRD161J-331	RESISTOR	330Ω, 1/6W
	R116	QRD161J-331	RESISTOR	330Ω, 1/6W
	R117	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R118	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R119	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R120	QRD161J-473	RESISTOR	47kΩ, 1/6W
	R121	QRD161J-331	RESISTOR	330Ω, 1/6W
	R122	QRD161J-331	RESISTOR	330Ω, 1/6W
	R123	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R124	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
	R125	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R126	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R127	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R128	QRD161J-472	RESISTOR	4.7kΩ, 1/6W
	R129	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R130	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R131	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R132	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R133	QRD161J-163	RESISTOR	16kΩ, 1/6W
	R134	QRD161J-103	RESISTOR	10kΩ, 1/6W
	R135	QRD161J-823	RESISTOR	82kΩ, 1/6W
	R136	QRD161J-183	RESISTOR	18kΩ, 1/6W
	R137	QRD161J-203	RESISTOR	20kΩ, 1/6W
	R138	QRD161J-163	RESISTOR	16kΩ, 1/6W
	R139	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R140	QRD161J-223	RESISTOR	22kΩ, 1/6W
	R141	QRD161J-113	RESISTOR	11kΩ, 1/6W
	C101	QFLC1HJ-682Z	M CAPACITOR	0.0068μF, 50V
	C102	QFLC1HJ-682Z	M CAPACITOR	0.0068μF, 50V
	C103	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C104	QCBB1HJ-102	CAPACITOR	0.001μF, 50V
	C105	QETC1AM-476	E CAPACITOR	47μF, 10V
	C106	QETC1AM-476	E CAPACITOR	47μF, 10V
	C107	QETC1CM-106	E CAPACITOR	10μF, 16V

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	C108	QETC1CM-106	E CAPACITOR	10μF, 16V
	C109	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C110	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C111	QETC1AM-107	E CAPACITOR	100μF, 10V
	C112	QETC1AM-107	E CAPACITOR	100μF, 10V
	C113	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C114	QETC1HM-225	E CAPACITOR	2.2μF, 50V
	C115	QETC1AM-107	E CAPACITOR	100μF, 10V
	C116	QCXB1CM-182	CAPACITOR	0.0018μF, 16V
	C117	QETC1CM-476	E CAPACITOR	47μF, 16V
	C118	QETC1AM-476	E CAPACITOR	47μF, 10V
	C119	QETC1AM-476	E CAPACITOR	47μF, 10V
	C120	QETC1CM-476	E CAPACITOR	47μF, 16V
	C121	QCVB1CN-103	CAPACITOR	0.01μF, 16V
	C122	QFV71HJ-153	TF CAPACITOR	0.015μF, 50V
	C123	QFV71HJ-153	TF CAPACITOR	0.015μF, 50V
	C124	QFV71HJ-223	TF CAPACITOR	0.022μF, 50V
	C125	QFV71HJ-333	TF CAPACITOR	0.033μF, 50V
	C126	QCXB1CM-182	CAPACITOR	0.0018μF, 16V
	CN101	PEMC0713-110	HOUSING	

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M-CTL/SERVO BOARD ASSEMBLY 〈79〉

REF.No	PART No.	PART NAME,DESCRIPTION	
PWBA	PB10709A-01	M-CTL/SERVO BOARD ASSEMBLY	
TP401	PEMC0727	TEST PIN, X6	

—SERVO SECTION—

REF.No	PART No.	PART NAME,DESCRIPTION	
IC401	HD49780NT	IC	
IC451	BA7039	IC	
or	XRA7039	IC	
D402	1SS133	DIODE	
or	MA165	DIODE	
D403	1SS133	DIODE	
or	MA165	DIODE	
R401	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
R402	QRD161J-102	RESISTOR	1kΩ, 1/6W
R403	QRD161J-105	RESISTOR	1MΩ, 1/6W
R404	QRD161J-103	RESISTOR	10kΩ, 1/6W
R405	QRD161J-474	RESISTOR	470kΩ, 1/6W
R406	QRD161J-102	RESISTOR	1kΩ, 1/6W
R407	QRD161J-102	RESISTOR	1kΩ, 1/6W
R409	QRD161J-102	RESISTOR	1kΩ, 1/6W
R410	QRD161J-223	RESISTOR	22kΩ, 1/6W
R411	QRD161J-225	RESISTOR	2.2MΩ, 1/6W
R412	QRD161J-473	RESISTOR	47kΩ, 1/6W
R413	QRD161J-222	RESISTOR	2.2kΩ, 1/6W
R414	QRD161J-122	RESISTOR	1.2kΩ, 1/6W
R415	QRD161J-332	RESISTOR	3.3kΩ, 1/6W
R416	QRD161J-223	RESISTOR	22kΩ, 1/6W
R417	QRD161J-223	RESISTOR	22kΩ, 1/6W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R418	QRD161J-105	RESISTOR	1MΩ,1/6W
	R419	QRD161J-273	RESISTOR	27kΩ,1/6W
	R421	QRD161J-394	RESISTOR	390kΩ,1/6W
	R423	QRD161J-105	RESISTOR	1MΩ,1/6W
	R424	QRD161J-273	RESISTOR	27kΩ,1/6W
	R428	QRD161J-564	RESISTOR	560kΩ,1/6W
	R429	QRD161J-183	RESISTOR	18kΩ,1/6W
	R430	QRD161J-335	RESISTOR	3.3MΩ,1/6W
	R431	QRD161J-334	RESISTOR	330kΩ,1/6W
	R432	QRD161J-822	RESISTOR	8.2kΩ,1/6W
	R436	QRD161J-102	RESISTOR	1kΩ,1/6W
	R438	QRD161J-104	RESISTOR	100kΩ,1/6W
	R451	QRD161J-102	RESISTOR	1kΩ,1/6W
	R452	QRD161J-182	RESISTOR	1.8kΩ,1/6W
	R453	QRD161J-102	RESISTOR	1kΩ,1/6W
	R454	QRD161J-153	RESISTOR	15kΩ,1/6W
	R455	QRD161J-102	RESISTOR	1kΩ,1/6W
	R456	QRD161J-184	RESISTOR	180kΩ,1/6W
	C401	QCBB1HJ-102	CAPACITOR	0.001µF,50V
	C402	QEK61AM-226	E CAPACITOR	22µF,10V
	C403	QEK61AM-226	E CAPACITOR	22µF,10V
	C404	QCBB1HJ-181	CAPACITOR	180pF,50V
	C405	QCBB1HJ-102	CAPACITOR	0.001µF,50V
	C406	QFV71HJ-223	TF CAPACITOR	0.022µF,50V
	or	QFV11HJ-223	MMT CAPACITOR	0.022µF,50V
	C407	QCBB1HJ-102	CAPACITOR	0.001µF,50V
	C408	QFV71HJ-563	TF CAPACITOR	0.056µF,50V
	or	QFV11HJ-563	MMT CAPACITOR	0.056µF,50V
	C409	QCSB1HJ-470	CAPACITOR	47pF,50V
	C410	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C411	QCC11EJ-473	CAPACITOR	0.047µF,25V
	C412	QEK61CM-106	E CAPACITOR	10µF,16V
	C413	QFV71HJ-224	TF CAPACITOR	0.22µF,50V
	or	QFV11HJ-224	TF CAPACITOR	0.22µF,50V
	C414	QCC31CK-223	CAPACITOR	0.022µF,16V
	C415	QEK61EM-475	E CAPACITOR	4.7µF,25V
	C416	QEK61EM-475	E CAPACITOR	4.7µF,25V
	C417	QEK61CM-106	E CAPACITOR	10µF,16V
	C418	QEK61CM-106	E CAPACITOR	10µF,16V
	C419	QCC31CK-223	CAPACITOR	0.022µF,16V
	C420	QFV71HJ-184	TF CAPACITOR	0.18µF,50V
	or	QFV11HJ-184	MMT CAACITOR	
	C421	QCBB1HJ-471	CAPACITOR	470pF,50V
	C451	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C452	QCC31CK-104	CAPACITOR	0.1µF,16V
	C453	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C454	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C455	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C456	QCVB1CM-103	CAPACITOR	0.01µF,16V
	C458	QEK61CM-106	E CAPACITOR	10µF,16V
	C459	QFV71HJ-473	TF CAPACITOR	0.047µF,50V
	or	QFV11HJ-473	MM CAPACITOR	0.047µF,50V
	L401	PU59988-270JL	COIL	27µH
	L451	PU59152-270J	COIL	27µH

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	CN1	PU58844-3	CONNECTOR	
	CN2	PU59555-4	CONNECTOR	
	CN3	PU59555-8	CONNECTOR	
⚠	CP401	ICP-F15	CIRCUIT PROTECTOR	

—M-CTL SECTION—

REF.No	PART No.	PART NAME,DESCRIPTION	
IC601	M37525M4-109SP	IC	
or	M37525E4-109SP	IC	
IC602	S-6731A-038	IC	
Q601	2SB1425(EU)	TRANSISTOR	
Q602	2SC3199(GB)-TJK	TRANSISTOR	
Q603	DTC114ES	TRANSISTOR	
Q605	DTC144ES	TRANSISTOR	
Q606	DTC114WS	TRANSISTOR	
D601	HZS7.5EB2	ZENER DIODE	
or	MTZ7.5B	ZENER DIODE	
or	UZ7.5BSB	ZENER DIODE	
D602	MA165	DIODE	
or	1SS133	DIODE	
D603	MA165	DIODE	
or	1SS133	DIODE	
D604	MA165	DIODE	
or	1SS133	DIODE	
D605	MA165	DIODE	
or	1SS133	DIODE	
D606	11ES2	DIODE	
or	ERA15-02	DIODE	
or	S5688G	DIODE	
or	1SR139-200	DIODE	
D607	11ES2	DIODE	
or	ERA15-02	DIODE	
R601	QRD161J-681	RESISTOR	680Ω,1/6W
R602	QRD161J-105	RESISTOR	1MΩ,1/6W
R603	QRD161J-103	RESISTOR	10kΩ,1/6W
R604	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R605	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R606	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R607	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R608	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R609	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R610	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R611	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R612	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R613	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R614	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R615	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R616	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R617	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R618	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R619	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R620	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R621	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R622	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R623	QRD161J-472	RESISTOR	4.7kΩ,1/6W
R624	QRD161J-222	RESISTOR	2.2kΩ,1/6W
R625	QRD161J-102	RESISTOR	1kΩ,1/6W

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	R626	QRD161J-102	RESISTOR	1kΩ,1/6W
	R627	QRD161J-102	RESISTOR	1kΩ,1/6W
	R628	QRD161J-681	RESISTOR	680Ω,1/6W
	R629	QRD161J-821	RESISTOR	820Ω,1/6W
	R630	QRD161J-152	RESISTOR	1.5kΩ,1/6W
	R631	QRD161J-471	RESISTOR	470Ω,1/6W
	R632	QRD161J-333	RESISTOR	33kΩ,1/6W
	R633	QRD161J-103	RESISTOR	10kΩ,1/6W
	R634	QRD161J-103	RESISTOR	10kΩ,1/6W
	R635	QRD161J-103	RESISTOR	10kΩ,1/6W
	R636	QRD161J-103	RESISTOR	10kΩ,1/6W
	R637	QRD161J-103	RESISTOR	10kΩ,1/6W
	R638	QRD161J-103	RESISTOR	10kΩ,1/6W
	R639	QRD161J-303	RESISTOR	30kΩ,1/6W
	R640	QRD161J-333	RESISTOR	33kΩ,1/6W
	R642	QRD161J-563	RESISTOR	56kΩ,1/6W
	R643	QRD161J-154	RESISTOR	150kΩ,1/6W
	R644	QRD161J-224	RESISTOR	220kΩ,1/6W
	R645	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R646	QRD161J-332	RESISTOR	3.3kΩ,1/6W
	R647	QRD161J-102	RESISTOR	1kΩ,1/6W
	R648	QRD161J-102	RESISTOR	1kΩ,1/6W
	R649	QRD161J-682	RESISTOR	6.8kΩ,1/6W
	R650	QRD161J-103	RESISTOR	10kΩ,1/6W
	R651	QRD161J-103	RESISTOR	10kΩ,1/6W
	R652	QRD161J-682	RESISTOR	6.8kΩ,1/6W
	R653	QRD161J-103	RESISTOR	10kΩ,1/6W
	R655	QRD161J-103	RESISTOR	10kΩ,1/6W
	R656	QRD161J-103	RESISTOR	10kΩ,1/6W
	R657	QRD161J-103	RESISTOR	10kΩ,1/6W
	C601	QCC11CJ-104	CAPACITOR	0.1μF,16V
	C602	QEK61HM-335	E CAPACITOR	3.3μF,50V
	C603	QER61HM-105	E CAPACITOR	1μF,50V
	C604	QEK60JM-107	E CAPACITOR	100μF,6.3V
	C605	QCBB1HJ-121	CAPACITOR	120pF,50V
	C608	QCC11EJ-104	CAPACITOR	0.1μF,25V
	C609	QCBB1HJ-101	CAPACITOR	100pF,50V
	L601	PU59152-2R2J	COIL	2.2μH
⚠	CF601	PEVB0340	RESONATOR	
⚠	TH601	PESC1041	POSI THERMISTOR	
⚠	or	PESC1089	POSI THERMISTOR	
	CN602	PU59555-4	CONNECTOR	
	CN603	PU59555-9	CONNECTOR	
	CN604	PU59555-10	CONNECTOR	
	CN605	PU59555-8	CONNECTOR	
	CN606	PU59555-5	CONNECTOR	
	CN607	PU59555-11	CONNECTOR	
	CN608	PU59555-6	CONNECTOR	
	CN609	PU59555-3	CONNECTOR	
	CN610	PU58844-2	CONNECTOR	
⚠	CP601	ICP-N20	CIRCUIT PROTECTOR	

—VPS SECTION—

⚠	REF.No	PART No.	PART NAME,DESCRIPTION	
	IC101	SAA4700	IC	
	R101	QRD161J-472	RESISTOR	4.7kΩ,1/6W
	R102	QRD161J-822	RESISTOR	8.2kΩ,1/6W
	R103	QRD161J-753	RESISTOR	75kΩ,1/6W
	C101	QCBB1HJ-102	CAPACITOR	0.001μF,50V
	C102	QCXB1CN-472	CAPACITOR	0.0047μF,16V
	C103	QFJ41HJ-104	M CAPACITOR	0.1μF,50V
	C104	QCBB1HJ-471	CAPACITOR	470pF,50V
	C105	QFJ41HJ-104	M CAPACITOR	0.1μF,50V
	C106	QCXB1CN-472	CAPACITOR	0.0047μF,16V
	C107	QCF11HP-223	CAPACITOR	0.022μF,50V

SECTION 6
TECHNICAL INFORMATIONS

6.1 CPU PIN FUNCTIONS

1. MECHACON CPU pin function (IC601)

Pin No.	Label	IN/OUT	Note
1	Vcc	—	For the SYSTEM CONTROL, DC 5V (AL 5V)
2	Vref		
3	START SENS	I	LEADER TAPE DETECT (DET ON: L)
4	CASS SENS	I	CASSETTE IN/OUT DETECT (DET ON: L)
5	AVG FM	I	AUTO TRACKING DATA INPUT
6	THERM		THERMIC CORRECTION (CAPSTAN BRAKE TIMING CONTROL)
7	MODE SENS A		MECHANISM MODE DETECT
8	MODE SENS B		
9	MODE SENS C		
10	L CM 1		LOADING MOTOR CONTROL
11	LCM 2		
12	APT CTL	I	PICTURE CONTROL
13	CAP. V CTL	O	CAPSTAN MOTOR DRIVE VOLTAGE SERVO
14	DRUM . V CTL		DRUM MOTOR DRIVE VOLTAGE SERVO
15	REC SAFETY		DETECTS ERASE PROTECT TAB (TAB ABSENT: H)
16	SYNC DET		INPUT SIGNAL DETECT
17	DRUM F/F	I	REC TIMING CONTORL, DRUM ROTATION DETECT (25 Hz)
18	CTL PULSE	I	MODE DETECT (SP/LP), BLANK DETECT
19	CAP REV	O	CAPSTAN ROTATION CONTROL (REV: L)
20	V. P CTL	O	V PULSE CONTROL
21	HEAD SELECT	O	HEAD SELECT SIGNAL OUTPUT
22	V UP	O	CAPSTAN ROTATION SPEED CONTORL
23	REEL FG (SP)	I	REEL ROTATION DETECT/TAPE REMAIN
24	REEL FG (TU)		
25	END SENS		TRAILER TAPE DETECT (DET ON: L)
26	CAP FG	I	MODE (SP/LP) DETECT/BACK SPACE COUNT
27	CN Vss		GND
28	RESET		RESET AT CONNECT VCR TO AC
29	**X IN**	I	MAIN SYSTEM CLOCK
30	**X OUT**	O	
31	Ø	—	NC
32	Vss	—	GND
33	R PAUSE	I	REMOTE PAUSE CONTROL (PAUSE ON: L)
34	**EDIT CTL**	O	**EDIT CONTROL**
35	INDEX	I/O	INDEX DATA WRITE/DETECT
36	S. DATA	O	SERVO CONTROL DATA OUTPUT (16 BIT)
37	S/M/P CLK	O	DATA TRANSFER CLOCK
38	M DATA	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
39	M CE	O	MEMORY IC CHIP ENABLE
40	A/M/S	O	HEAD SELECT SIGNAL OUTPUT (AUTO:M/MANUAL:H/SLOW AND STILL:L)
41	P MUTE	O	PICTURE MUTE CONTROL (MUTE ON: L)
42	REC START	O	REC START: L
43	A ERASE	O	AUDIO ERASE HEAD ON: L
44	NC	—	NC
45	H REC ST	O	HiFi REC START: L
46	AI CLK	O	
47	AI DATA	O	
48	N DET	O	NOISE DETECT (DET ON: L)
49	AC CLK	O	
50	AC DATA	O	
51	A MUTE	I/O	MEMORY IC CONTROL (DATA READ/WRITE)
52	REAR	O	INPUT SIGNAL SELECT
53	TU CTL	O	TUNER MODE: H
54	V MUTE	O	VIDEO MUTE CONTORL (MUTE ON: H)
55	PLL DATA	O	TUNING DATA OUTPUT
56	DEM MUTE	O	DEMOD MUTE CNTROL (MUTE ON: H)
57	DEM CLK	O	DATA TRANSFER CLOCK
58	DEM DATA	O	DEMOD CONTORL DATA
59	LOCK DET	I	TUNIG CHECK DATA
60	P CTL	O	POWER CONTORL (P. ON: L)
61	SERVO		CAPSTAN MOTOR SERVO (SERVO MODE: H)
62	T. CLK	O	DATA TRANSFER CLOCK
63	T. DATA	I/O	M-CTL/TIMER CPU BUS DATA (16 BIT SERIAL)
64	PAUSE	O	CAPSTAN MOTOR SERVO

Table 6-1-1 MECHACON CPU pin function

2. TIMER CPU pin function (IC1)

PIN NO.	LABEL	IN/OUT	NOTE
1	Sd	OUT	KEY SCAN PULSE OUTPUT
2	Sc	OUT	KEY SCAN PULSE OUTPUT
3	Sb	OUT	KEY SCAN PULSE OUTPUT
4	Sa	OUT	KEY SCAN PULSE OUTPUT
5	POWER DOWN	IN	POWER DOWN DETECT (POWER DOWN: L)
6	DISP/OS CLOCK	OUT	DISPLAY/ON SCREEN DATA TRANSFER CLOCK
7	DISP/OS DATA	OUT	DISPLAY/ON SCREEN SERIAL DATA
8	TEST	IN	TEST POINT (CLOCK ADJUST/FDP CHECK)
9	REMOTE	IN	16BIT REMOTE DATA
10	NC	—	GND
11	CNT PLS	IN	LINEAR TIME COUNTER DATA
12	CNT PLS	IN	LINEAR TIME COUNTER DATA
13	KS 0	IN	KEY SCAN DATA INPUT
14	KS 1	IN	
15	KS 2	IN	
16	KS 3	IN	
17	M/C DATA	IN/OUT	MECHACON/TIMER SERIAL DATA
18	M/C CLOCK	OUT	MECHACON/TIMER DATA TRANSFER CLOCK
19	SDA	IN/OUT	VIDEO PROGRAM SYSTEM SERIAL DATA
20	SCL	OUT	VIDEO PROGRAM SYSTEM DATA TRANSFER CLOCK
21	OS CS	OUT	ON SCREEN IC CHIP SELECT: L
22	OS RESET	OUT	ON SCREEN IC RESET: L
23	DISP CE	OUT	DISPLAY IC CHIP ENABLE
24	REAR	IN	INPUT SIGNAL SELECT
25	POWER LED	IN	POWER LED ON: H
26	AUDIO INT	OUT	AUDIO CONTROL IC CHIP SELECT
27	AUDIO CLK	OUT	AUDIO CONTROL SERIAL DATA TRANSFER CLOCK
28	PROG	IN	BLUE BACK MODE: H
29	NC	—	NC
30	X1	IN	MAIN SYSTEM CLOCK (4.19 MHz)
31	X2	OUT	
32	Vss	—	GND
33	XT1	IN	GND
34	XT2	—	NC
35	JS/B	I	JOG DIAL PULSE INPUT
36	SHUTTLE	I	SHUTTLE SW
37	JS/A	I	JOG DIAL PULSE INPUT
38	AUD DATA	OUT	AUDIO CONTORL SERIAL DATA
39	RESET	IN	RESET AT CONNECT VCR TO AC
40	NC	—	NC
41	NC	—	
42	NC	—	
43	NC	—	
44	NC	—	
45	NC	—	
46	NC	—	
47	NC	—	
48	NC	—	
49	NC	—	
50	SP	OUT	KEY SCAN PULSE OUTPUT
51	So	OUT	
52	Sn	OUT	
53	Sm	OUT	
54	Sl	OUT	
55	Sk	OUT	
56	V LOAD	—	GND
57	V PRE	—	GND
58	Sj	—	NOT USED
59	Si	—	NC
60	Sh	OUT	KEY SCAN PULSE OUTPUT
61	Sg	OUT	
62	Sf	OUT	
63	Se	—	NC
64	VDD	IN	UNSW 5V

Table 6-1-2 TIMER CPU pin function

E. & O. E. No. 82329